July 10 1915

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The COUNTRY GENTLEMAN

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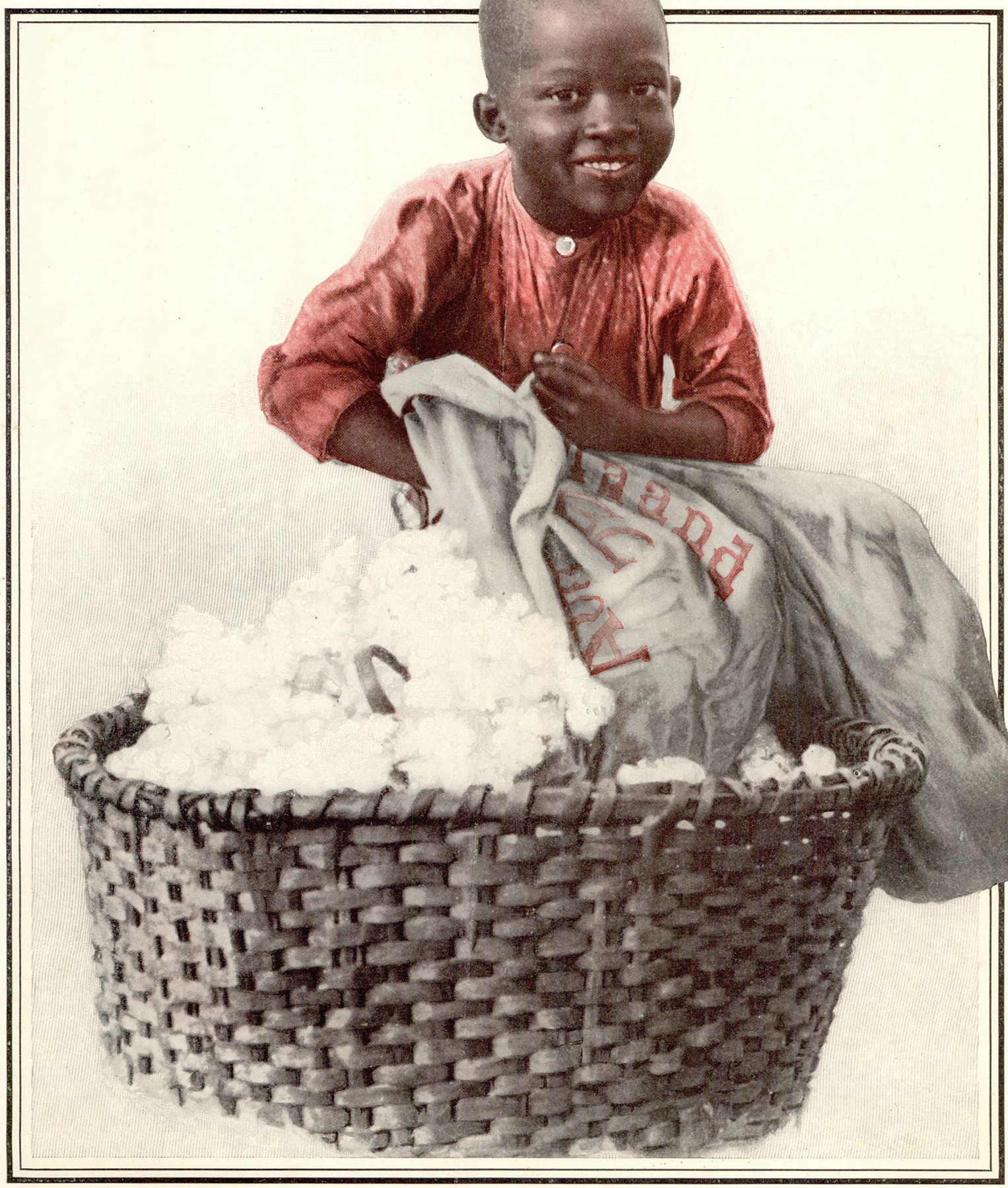


The CURTIS PUBLISHING COMPANY Philadelphia

She Met The Crisis

Left alone by the death of her husband, with five children to support, Mrs. H. S. Osburn, living in a small Pennsylvania town, was compelled to find some means of earning a living. That was in 1908. Since then Mrs. Osburn has been supporting her family and meeting all expenses by looking after the local renewals and new subscriptions of *The Ladies' Home Journal, The Saturday Evening Post* and *The Country Gentleman.* She writes:

> *"I feel that I have done well, considering everything, and I certainly like the work. I have always been treated with respect and have steadily gained more confidence in myself."*

If you are in need of money; if you have spare time or evenings that you want to convert into cash; if you require more money to pay current expenses, the Curtis plan will solve your problem. It is doing so now for thousands of other men and women. An inquiry will bring full details.

Agency Division, Box 946

THE CURTIS PUBLISHING COMPANY, PHILADELPHIA, PENNA.

NEXT WEEK

Where Wind Does the Work

Power from the windmill on a big North Dakota farm pumps water, runs the washing machine, the electric fan, the vacuum cleaner, the heating plant, the emery wheel, the grindstone, the forge and the churn; it elevates feed to the overhead bin, cleans buildings, and does a score of other things.

If you live in a section where the wind blows you can have a plant like this. George F. Paul tells the story.

Bagging the Blossom

Darwin discovered in his experiments that the tobacco plant was an exception to the general rule and did not deteriorate in vigor as a result of inbreeding. The application of this discovery has enabled the growers of shade tobacco in Connecticut to rescue their industry from failure.

In next week's issue A. D. Shamel tells how these tobacco growers have found their profits in paper bags.

Cows and Cowpeas

In 1900 an Ohio farmer moved to North Carolina and for twelve dollars an acre bought 240 acres—part of an old plantation that had been skinned for half a century. He brought with him various things that folks in his new neighborhood didn't generally use—and year before last the farm, on a valuation of a hundred dollars an acre, yielded more than six per cent, plus $1000 salary.

The answer to all this is in Cows and Cowpeas, an article by Harry Snowden Stabler in next week's issue. The title gives away the secret.

Thirty Bushels to the Good

The Kansas State Agricultural College is uncovering the reasons for big yields of wheat. A difference of more than thirty bushels to the acre has rewarded care in the preparation of the seed bed. One plot of ground produced only nine bushels, while another plot—same soil, same seed, but different treatment—gave forty-four bushels.

It is worth while to know what makes this difference, and in next week's issue Floyd B. Nichols tells the results of the experiments and the methods that brought them about.

Ready for Canning Days

The canning season is here. If you on the farm are going to put up the surplus fruits and vegetables, if you in town are going to take advantage of glutted markets and low prices to wallop next winter's high cost of living, now's the time to get busy!

William Harper Dean has written an article for next week's issue containing some final reminders and suggestions that may forestall trouble. If you don't already know about the cold-pack method of canning, read this article next week!

War Refugees on Carolina Farms

Driven from their homes by war, and brought to North Carolina, a number of Belgian farmers are showing us the skill in intensive farming that has made them known the world over. Next week we shall print pictures of a number of these refugees, who in seventy to eighty days have made crops ready for market.

A Farm From Under Water

Years ago the Neosho River overflowed the Deming ranch in Kansas. A heavy growth of hickory, ash, elm, black walnut and oak covered the bottomland. Now 2350 acres have been cleared, making several million feet of lumber; an eleven-mile dike, costing $25,000, has been run round the lowland, and tile drains, at a cost of $40,000 more, have pulled this farm from under water.

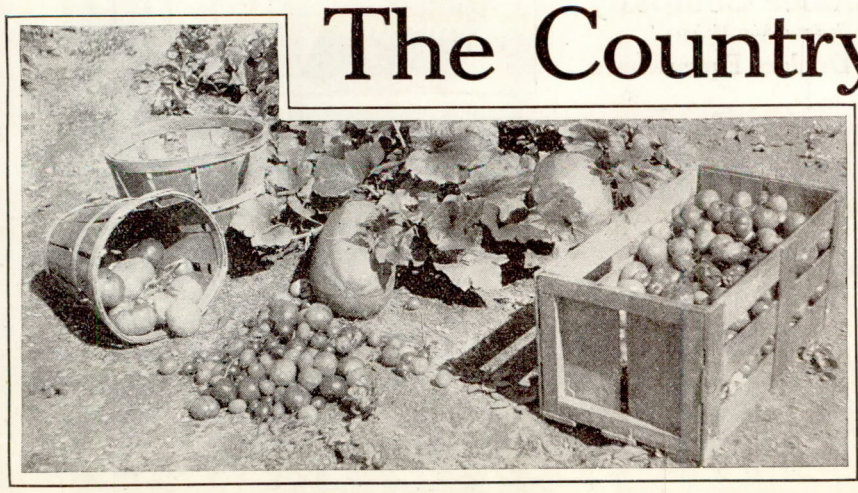
Today, as Vinton V. Detwiler tells the story, the ranch is a big profit producer for a business man who had vision and who wasn't afraid to spend his money to open up the possibilities of the place.

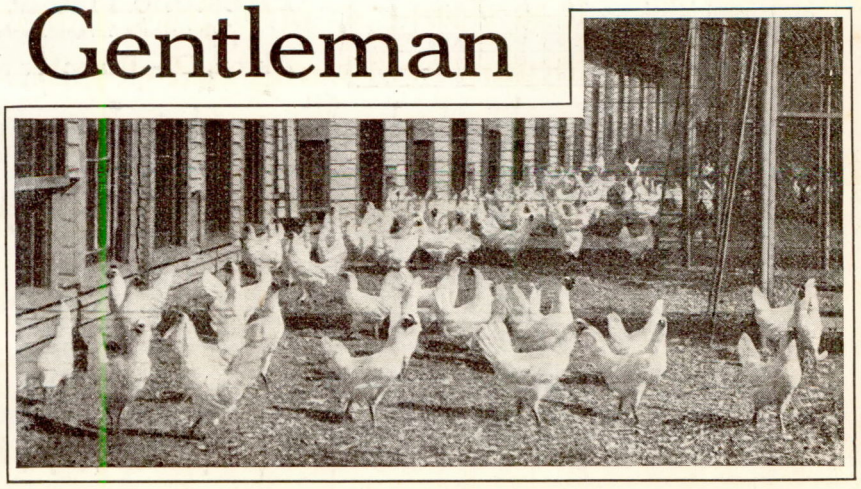
Dream Farms That Have Come True

If ever there were a case of dream farming come true, it is surely Porto Rican fruit raising. The industry was established by Americans from almost every walk of life except farming itself. Teachers, doctors, engineers, salesmen, merchants, sea captains, lawyers and Government employees have taken up this specialty with all the hopes of the enthusiast misled by the promoter, and have stayed to confront the hard facts.

But the industry has been developed against all the mistakes, discouragements and setbacks, until today it is in excellent condition, with a product of peculiarly good quality, a coöperative exchange to sell it, and a keen interest in distribution and advertising to provide outlets for the larger crops of coming years. James H. Collins tells the story.

The Country Gentleman





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Because specializing leads to practiced efficiency and reduced cost of production and distribution.

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30x3½	11.90	13.35	2.60	2.90
32x3½	13.75	15.40	2.70	3.05
34x4	19.90	22.30	3.90	4.40
34x4½	27.30	30.55	4.80	5.40
36x4½	28.70	32.15	5.00	5.65
37x5	35.55	39.80	5.95	6.70
38x5½	46.00	51.50	6.15	7.55

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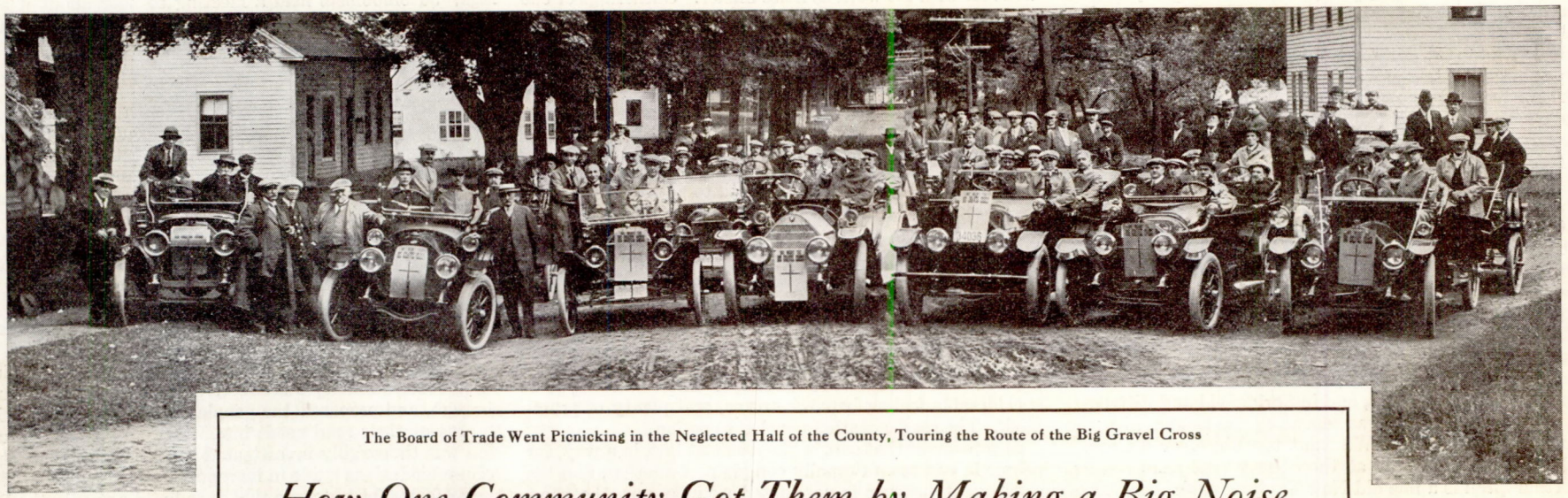
"WE WANT GOOD ROADS!"



The Board of Trade Went Picnicking in the Neglected Half of the County, Touring the Route of the Big Gravel Cross

How One Community Got Them by Making a Big Noise

By James H. Collins

JUST the other day the Massachusetts legislature passed a bill authorizing a bond issue of $2,000,000 for some country roads, to be built during the next four summers. These will not be big automobile highways, but real country roads that are needed to open up in the western part of that state a neglected section which is so large and so utterly without modern transportation facilities that people in other parts of the United States are usually astonished to hear that so much "back country" still exists in civilized New England.

It was the writer's part to act as a sort of volunteer noise maker in the movement that crystallized road sentiment and brought the bond issue about, and now that the movement has culminated in results, the story of how the noise was made can be written for the guidance and encouragement of men in other country neighborhoods where improvements are needed. Noise seems to be necessary in getting public improvements. Some people call it by the more dignified word "publicity," but whatever the term, it is a prime essential, and there is a definite way to make it.

The writer never paid much attention to roads in that section, where he has a farm used for a summer home, until he bought a small automobile. Then lack of roads became the outstanding drawback of an otherwise satisfactory countryside. His farm is, roughly, at the center of a hill section about fifteen miles square. It is fully three hours to the railroad station by horse and about an hour by motor.

That section has not a mile of macadam road, nor anything in the shape of a railroad branch or trolley line. It has steadily been losing population since the Civil War. The writer's township once had a population of over 4000. Today it has only 700. Farms have been thrown together as the people have died or have moved away. There are probably more deer there than people—in fact, deer are a real pest.

Land is down to values as low as five or ten dollars an acre, and this is only one representative neighborhood in the western counties of Massachusetts, where more than 600 square miles of farm country lie more than an hour's drive by horse from any railroad station. The people have spent what they could for roads, but the job has been too big for them. Miles of ordinary back road have grown up to brush; even the main highways leading to railroads lack improvements.

One summer was spent in getting round somehow by auto, and wondering why somebody did not do something about this road question. The following spring, 1914, the writer decided that he might as well do something himself.

An amusing fact about road agitation is that citizens get behind a leader because they want the road from their property to town or to the railroad station improved. If that is improved they may not worry about what is done for the neighbors. On this basis one organizes his following, and it was on this basis that the writer started.

A quarter-mile stretch of road near his home was in pretty bad shape. It was the only very bad stretch in a fair dirt road to a town that could be reached by auto in an hour. It had a bad reputation. People avoided that quarter-mile stretch, and the more they went round the less effort was made to keep it in repair. A visit to the town official in charge of roads brought a flat refusal to do anything in the way of improvement. He was not much disposed to listen to argument about it. When a day had been spent in touring his township in the auto, however, rousing neighborhood opinion by an explanation of the facts, he became quite friendly, surveyed the road, and made an arrangement whereby fifty dollars was to be spent in repairs, of which the writer was to pay half. About twenty-five dollars of this money went into dynamite to lift out rocks that interfered with good drainage.

This experience led to a study of other neglected roads, to see who was responsible for them, and how officials could be stimulated in the same way. On the surface it looked as though road officials were doing very little to get results with taxpayers' money. As boards in several townships were apparently at fault, along with county commissioners and state highway officials, the problem was tackled through the newspapers.

Open letters were written to officials calling attention to bad road conditions and asking why these were not remedied. Copies of the letters were sent to all newspapers read in the territory where improvements were needed. Yankees are great newspaper readers, and this attracted attention immediately. Interest was centered on roads, and general discussion started.

If the writer were doing it again he would not do this part of it in just that way. So long as you do not know selectmen or commissioners personally, and have only the surface facts about their work, it is easy to write strong complaints, and also to get people to agree with you. But when the officials themselves come personally with explanations, and prove to be average men, honestly doing about all they can to meet hundreds of different needs with limited public money, and eager to do more when the public is roused to supply more funds, it is a different matter.

This criticism of officials through open letters in the newspapers accomplished two good ends, however. Attention was attracted quickly, because the general public always likes to see somebody stirring up men in office, just as it likes to see a street fight. And the men in office declared themselves on the side of any movement for better roads, and gave information that led to the planning of a more constructive campaign.

For years this neglected section of Massachusetts has been hoping for railroads. Several movements for steam or trolley lines led to the introduction of projects in the legislature, but none of them came to anything. People finally got discouraged. Also, as long as their hopes were centered on railroads they paid too little attention to possibilities of better transportation by wagons and auto trucks on good roads.

Study of the fifteen-mile square of territory in which the writer lived, and was most interested, showed that two main highways carried all the travel to railroads. Each township spent some money on its portion of those two highways every summer, building a stretch of gravel road with good foundations, or cutting down a bad hill, or drying up a notorious spring mudhole. Every dollar of township money appropriated for such work was doubled by the state highway commission out of automobile fees, and work was done under good engineering supervision.

> IF A MAN were put off a train in almost any country town in the United States for not being able to pay his fare, and as soon as he had brushed the dust from his clothes began to shout: "What this town needs is good roads!" he would find people falling in behind him as a leader, and if he presented a constructive road-building program he would have plenty of support in a week.
>
> For people in country districts want good roads, and if some one starts them shouting for good roads they get them.
>
> But first there must be publicity. Be a noise maker for your own community!

This gravel road was all good highway, suited to the light traffic, and as near permanent as any road can ever be. But at the rate the towns were building it would be many years before the whole could be finished. One township in particular had a very long stretch of these main highways, but little money for improvement, because it was a growing factory town on the railroad and needed its money for town betterment.

These two main roads roughly made a cross. They opened up the whole territory. Obviously it would be an immense improvement if they could be transformed into good country gravel roads. Farmers would then haul heavier loads and go to town in wet weather just as easily as in dry, and owners of summer homes could get back and forth in their automobiles.

To make plain to everybody what was needed, a sort of trade-mark was adopted, these two roads being called "The Big Gravel Cross."

A large placard was printed on half sheets of pasteboard. The card measured fourteen by twenty-two inches, an upright oblong, and was turned out in an ordinary printing office. The pasteboard was bright yellow, and the ink bright red—circus-poster colors that stand out prominently and can be recommended for such purposes. The work was done entirely in type. Across the top of this placard in big letters was a slogan: WE WANT THE BIG GRAVEL CROSS! Under it was a cross made of printer's rules, with the towns indicated. Beneath that was a small-type statement telling where the cross ran, how four of its corners touched fine automobile roads of macadam and three corners touched railroads, what percentage of it was already built, how much money it was estimated would be necessary to finish it, and so forth.

Getting the Merchants Interested

One thousand of these placards were printed at a cost of forty dollars. When they arrived they were eagerly carried over the whole territory. The butcher on his weekly routes stopped to tack them on barns. Merchants sent men in buggies to put them at crossroads. Automobilists stopped to read and wanted copies to carry to their neighboring towns and cities. In three days this placard was on every farm and store, and displayed in the windows of Northampton, the county seat, and in Springfield and Pittsfield. In a week everybody was repeating the slogan with the true Yankee twang: "We want the Big Grav-il Cross."

Next, the merchants at the county seat were roused. Northampton is a fine old New England town, the seat of several colleges. It is somewhat staid in its ways and, like most staid towns, has been in the past inclined to be a bit self-reproachful and to feel that it lacked the enterprise of bigger places. A party of township officials and neighborhood leaders was organized to go down to the county seat one evening and meet the Northampton Board of Trade. A beefsteak dinner put everybody in good humor, and the writer acted as spokesman for the back country.

For lack of good wagon roads, the county seat had long been cut off from the western half of the county. Just over the hill on the western border was the factory city of Pittsfield, in another county. It was easy to show by diagram that Pittsfield could draw trade from that territory, and away from Northampton, whenever it chose to build five miles of gravel road into the neglected territory, whereas Northampton would have to help with a much more elaborate road movement to save its trade and its dignity as the county seat.

This argument, deliberately based on self-interest, as the lever most likely to move a gathering of business men, was made the backbone of the talk. It was also charged that, for lack of good roads, the merchants of Northampton did not know anything about the western half of their own county.

That brought action! But the merchants were moved by something finer than self-interest. They saw competition plainly enough. But they saw, too, that the county seat had been neglectful, and wanted to atone for this neglect. They thought it was about time for Northampton to demonstrate that its business men had enterprise, so they went into the road movement heart and soul, to put a big thing over, just to prove to themselves that they could do it when they tried.

The meeting developed a spirit that made the noise maker a little ashamed of the appeal to self-interest, just as he had been ashamed of his criticism of public officials. But of course a noise maker must have reasonable latitude to learn his own business.

It was decided that the Board of Trade should take a day off in June and go picnicking in the neglected half of the county, touring the route of the Big Gravel Cross. They went in twenty automobiles, a hundred strong. The day was wet—not good picnic weather, but dandy for showing poor roads! The visitors admitted that improvements were needed, and the beauty of the country amazed them; they admitted that their ideas about the back country had been vague.

They ate lunch at a hotel on the route, each man paying his own expenses, and supper was served by the women in a village where the size of the party made it necessary for the ladies of the church and the ladies of the Grange to forget little local differences in viewpoint and to work together for the first time to feed a hundred hungry men. The hungry men paid a dollar apiece for their suppers; the ladies were delighted at making some money for their organizations, and at a meeting held after supper the leading men of the county seat and the hill townships had a conference that brought out many interesting facts—among others that the very township in which they had eaten supper, though in dire need of good roads, spent more money trying to solve its road problem than any other township in the state, proportionate to taxable valuations. A joint committee was formed to make further plans.

These activities were all reported fully in the newspapers, and increased the interest in roads. The writer went on with his work as noise maker. Gatherings of one sort and another asked him to speak about roads, and each speech was reported for the papers that everybody read. The method was simple and sure: Before a speech was made, the gist of the argument for good roads was written out and duplicate copies were sent to half a dozen newspapers in time to be printed the day after. Any volunteer noise maker engaged in such work can do the same. No fine writing is needed—just a long letter to each paper giving the facts. Newspapers are glad to get information of such broad public interest. And when people see a project explained in print several times it begins to take on tangibility. The facts are clearer in print. The project seems more feasible.

One of the towns on the Big Gravel Cross had so many miles of neglected road that people in adjoining towns who went there to trade petitioned the county commissioners for a hearing, to see if the neglectful town could not be ordered to put its road in good shape. There had long been considerable feeling between towns, and plenty of grumbling. The road agitation now led to action.

A petition of that sort is like a suit at law, in a way, for people in one town formally complain of another, and the subsequent hearing is conducted as in a suit, the complainants and defendants each stating their case, and the commissioners giving a decision.

A Scrap that Never Happened

Naturally, such action roused bad feeling in a country section, and on the day of the hearing the people of the different towns swarmed out ready to back up one another and to testify against the other side. This hostility, bred beneath the surface for years, and warmed up round stoves in country stores, soon disappeared when all the parties got together. The complainants said the worst that was to be said about the neglectful town's road policy from their point of view, and the selectmen from the neglectful town showed plainly that they were as willing to build good roads as the next community if they could afford it. But they proved that their tax rate was high, and that money was going into needed civic improvements.

In short, the facts on both sides came out; the people who held different views talked with one another man to man; the county commissioners put in a tactful word here and there; jokes were cracked, and everybody learned that road improvement was a big issue and that united effort and outside help were needed to solve the problem. Before they parted the men from the different towns agreed to work together for a broad program.

All this agitation was being shaped up for the fall elections when the European war broke out. Massachusetts elects a governor and a legislature every year, so the political pot is always boiling. It was planned to make the road project concrete and to elect legislators who would present and back it.

When war broke, the newspapers that had been coöperating suddenly changed their whole aspect, as did newspapers everywhere. The modest items of neighborhood gossip were crowded out to make room for the all-absorbing news of war and pillage. People had attention for nothing but the big world drama, and news about the iron bridge across Bear Creek was eclipsed by news from Belgium. It seemed as though the road movement would be swallowed up and forgotten.

But in the long run nothing is quite so interesting to people everywhere as their own affairs. Therefore it was felt that, though war news might overshadow everything else for a month or six weeks, in the end people would gravitate back to their own home interests and want to know how the iron bridge across Bear Creek was getting along. That proved true.

Through August publicity for the road movement was stopped. By September the war news was being condensed on front pages, neighborhood news emerged again, and good roads came in for attention. Business men and farmers wanted to have the project explained at gatherings; automobilists held a meeting to hear about it and pledge their support, and candidates for the legislature began to get ready to run on a good-roads plank.

Interest is Easily Stirred Up

Business called the noise maker South before election, so his work in the movement ceased. But while the final result was the work of many different interests and persons, and no credit can be claimed for any single factor, there is no doubt that publicity helped wonderfully, and that noise is necessary to such movements.

Good roads were in the air, but publicity focused interest upon them. Many different persons and interests were ready to organize for good roads, but it took publicity to pull together on a definite program.

While the movement was getting under way, the state legislature had before it a bill to appoint a commission to investigate the needs of the neglected western counties. Good-roads publicity was effective in helping that measure through, and prepared the people in the western counties to present their road needs intelligently. The road situation was thoroughly investigated by the commission, and recommendations made in its report to the Governor led to the $2,000,000 bond issue that is to build not only the Big Gravel Cross, but many miles of gravel road that will open up other isolated country neighborhoods in the same way.

Publicity is an immense help in bringing about such improvements. It lubricates the wheels of progress. Any man who is sufficiently interested in his neighborhood to study the situation, find out what seems to be needed, and draw up a tentative program for getting it, can transform himself into an efficient noise maker. So long as he can stand up before a gathering of neighbors and explain things from a soap box, and can write a good letter to the newspapers every time he explains, he can bring the matter into just as wide notice and keep it before people just as persistently through printed words. If he hesitates to write reports of his own impassioned speeches any good newspaper man in his neighborhood with public interests at heart can be enlisted to do the writing.

The volunteer noise maker will be astonished to find how easily public interest can be aroused in good roads, and how people anywhere will follow him as a leader when he presents a constructive program. If he were put off a train in almost any country town in the United States for not being able to pay his fare, and as soon as he had brushed the dust from his clothes began to shout: "What this town needs is good roads!" he would find people falling in behind him as a leader, and in a week would have plenty of support.

If he had never done anything in that line he might be disposed to laugh at himself as a leader, and wonder why substantial citizens with better brains and longer pocketbooks than his should follow him. But after a little experience he would see that people everywhere are waiting to be led. Most of them are following self-appointed leaders. If only he is unselfish he will grade higher than the average.

A man put off a train in a strange community might easily get a bigger following and better results through such publicity work than somebody who had always lived there. For people would be inclined to regard him as an unknown force, and concede that he was able to lead better than somebody they knew too well, and to feel that he was able to see their needs better than they themselves—as he very often can.

Each Township Built a Stretch of Road Every Summer, but it Would be Many Years Before the Whole Could be Finished

PEAS IN A MOUNTAIN VALLEY

When Grain Crops Failed They Brought Back Prosperity

By W. H. Olin

WHEN Nature formed the Rockies she gave some artistic touches to a region that in earlier geologic times had been a remarkable lake. She coursed a river to the south, to drain the lake, and then, to fringe the valley the drained lake left, she threw up some of the most wonderful saw-toothed peaks to be found anywhere on the globe—the Sangre de Cristo Range.

The valley is uniformly level, extending 100 miles north and south and varying in width from a few miles to more than fifty miles. It contains as much land as the whole state of Connecticut and is the source of one of the great streams of the Southwest—the Rio Grande.

Here, back in the sixties, the cattleman found a veritable sea of rich pasture, and this valley, 7500 feet above sea level, became the "cowman's delight" for its grass, its mountain water and its size.

When the rancher plowed up this soil and put in grain for his stock he found that the old lake-bottom soil, when water was applied, responded with astonishing yields of high-quality grain. Thus the San Luis Valley received its first influx of settlers who wanted forty-bushel wheat and eighty-bushel oats to grow on their mountain ranches.

Growing any one crop for a series of years with no change soon mines any soil of its available plant food. So yields in this valley, after a term of years, fell to the cost of production or below. What could be done? Why did the wheat and the oats fall off so tremendously?

The state experiment station had by this time been established, and here the valley ranchmen applied for help. The station chemist went over conditions quite carefully. In his laboratory he made thorough tests, so he could solve their crop and soil problems with definite accuracy. Then he told the valley farmers that, though they had a soil "as rich as cream," as they said, continued cropping to grain year after year for a quarter of a century had given them crop-sick land. No soil, no matter how rich, he explained, can continuously withstand the constant withdrawal of the same food elements. A change of crop is necessary.

The farmers had made yearly removals, in crops taken off, but had neglected to put back anything. They had made no deposits. He asked them how long their banker would permit them to check on their accounts with no deposits. Just as long as their former deposits lasted, he told them; no longer. When all their money was gone future checks would be marked "Not paid for want of funds" and would be returned, not honored, not paid. Just so with the soils, said this specialist. You must restore to your soil, sometime, material that Nature can use to make the organic material—humus—with which rich mineral soils are scantily supplied.

An Industry Started by an Accident

This was before the fundamentals of crop rotation were well understood in the Intermountain country. This station specialist told the farmers he did not know whether their land was too high for alfalfa—the West's great forage crop—but he did know that field peas would do well and grow luxuriantly in the valley. As a matter of fact, thousands of acres have since then been seeded to alfalfa with marked success.

The station man helped the valley farmers to get started raising peas. The crop succeeded, and then came the question what to do with it. Across the valley each fall lambs were shipped from Northern New Mexico to Northern Colorado feed lots, to be finished on Colorado alfalfa and Nebraska corn.

During the first season that peas were grown a trainload shipment of lambs, on the way to Northern Colorado feed lots, was caught in a bad snowstorm and because of the delay had to be unloaded for food and water. The most available feed was a near-by pea field. The lambs ate the peas with such great relish that they never did reach the Northern feed lots to which they had been consigned. They were finished on peas in the valley and sent directly "to the river"—a Missouri River market.

BACK in the sixties the San Luis Valley of Colorado was the "cowman's delight."

When the rancher came in he raised big crops for a time—and then the soil quit.

The experiment station suggested peas—a legume to bring back fertility.

And when the farmers were wondering what to do with the peas a storm threw on their hands a trainload of lambs to feed.

Today the valley is again the "cowman's delight"—with sheep and hogs for good measure.

When dressed the finish and flavor of that mutton attracted so much attention and awakened such favorable comment that the mountain-valley farmers knew they had found the market for their peas—through finished lambs. Then the pea fields were enlarged—twenty-acre fields were doubled, and again increased, until it became no uncommon sight to see a whole eighty or even a quarter section seeded to peas.

It was found that seeding with an ordinary grain drill, with the holes opened to their widest capacity because of the size of the peas, was about right. This used sixty to ninety pounds an acre. Some stopped up every other hole, putting the rows fourteen inches apart instead of seven. It was also found that seeding bald barley with the peas helped to hold the vines up from the ground and gave a larger percentage of pod from the heavy bloom.

The subirrigation method was used. The laterals were "as straight as a gun" because of the levelness and uniform slope of the land, while the porous or gravelly subsoil enabled the irrigators to place laterals many rods apart; capillarity "subbed up" the water all in between. This gave invigorated growth and the peas and barley soon took the ground and overreached all attempted weed growth. The rows of peas were too close together for cultivation, so the crop was an easy one to grow. Seeding and irrigation were all there was to do.

When the crop matured in the fall the general plan was to feed it to lambs. To watch them and round them up in coyote-proof corrals at night, a herder was sent out with the lambs. This was an easy way of harvesting the crop; and since the winters in this valley were usually open, it proved quite satisfactory and profitable. To tide over occasional storms, when big snows covered the pea fields for days at a time, the lamb feeders were forced to cut and stack a portion of their crops.

It was soon found that shattering peas, shelling on the ground, were not picked up by the lambs, so hogs were introduced. They cleaned up the shelled peas and made excellent foragers. It was found that a feed for the hogs at night called them back to their pens, and the siwne put on rapid gains at small cost. Peas and barley make firm, well-flavored pork, and soon the hog shared with the lamb in harvesting the 100,000 acres of field peas grown in the valley.

Thus pea-fed mutton and pork have brought the valley into prominence as neither its cattle nor its grain had done before. Every market sent back the same verdict—"Well finished, good flavor." The acreage multiplied to meet the growing demand, until now a quarter of a million lambs and many thousand hogs are annually fattened in the San Luis pea fields.

Two years ago some of the heaviest feeders expressed the opinion that this crop could be put into the silo, just as corn is in the Corn Belt, and that it would make a sufficient saving of feed to pay the extra cost. O. W. Sylvester was the first to try this out. First, he built the largest silo in Colorado. Because barley has a hollow stem that holds air, when silage must be air-tight, it was questioned whether the barley in the peas would work well.

Goats Tramp the Silage

Mr. Sylvester decided he would take no chances. So he used a band of goats to tramp the cut silage as it was elevated into the silo. A dozen goats, with a man to keep them moving, packed this silage so firmly that it not only kept well but enabled the feeder to put into his silo fifty tons more than its estimated capacity. This novel plan is now being adopted by neighbors having large silos to be filled. The packed silage keeps perfectly, as there can be no air pockets. Of course, when the silo is once opened there must be constant feeding, taking one to two inches of silage each day, as it comes in contact with the air, just as in feeding corn silage.

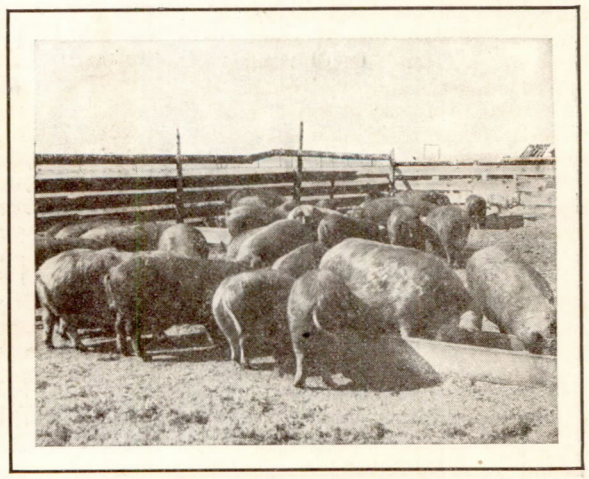
From two to three pounds of pea silage a lamb and from thirty to forty pounds a steer a day are the feeding rations. Usually a near-by field is saved for foraging the grain used—peas and barley—for lambs and hogs.

Feed troughs are provided in other instances and cracked or ground grain and peas are fed once or twice a day, as the feeder may think necessary. Today cheaper gains of beef and mutton are being made by use of pea silage than ever before in the history of the industry in the valley.

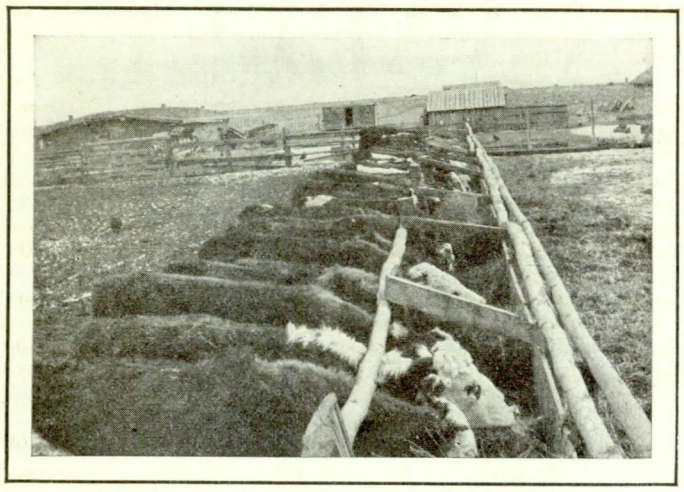
An acre of peas and barley will cut from six to ten tons of silage when proper care is given the crop. When cut for forage and stacked for hay, to be fed out dry, the yield is two to three tons of cured hay to the acre. The grain yields of peas vary according to the variety used and the farmer's methods. The minimum is twelve bushels; the maximum is fifty bushels. The average for the valley is approximately eighteen bushels.

To test out the vine capacity of a desirable type pea—Colorado White—a few years ago a Colorado State Agricultural College worker organized some 200 boys and girls of the valley into pea clubs. Each contestant was given hand-selected peas and instructed to plant 100 hills three feet apart each way. These were to be given clean culture

An Easy and Profitable Way of Harvesting the Crop



Peas and Barley Make Firm, Well-Flavored Pork



Cheaper Gains of Beef are Being Made by Feeding Pea Silage Than Ever Before in the Valley

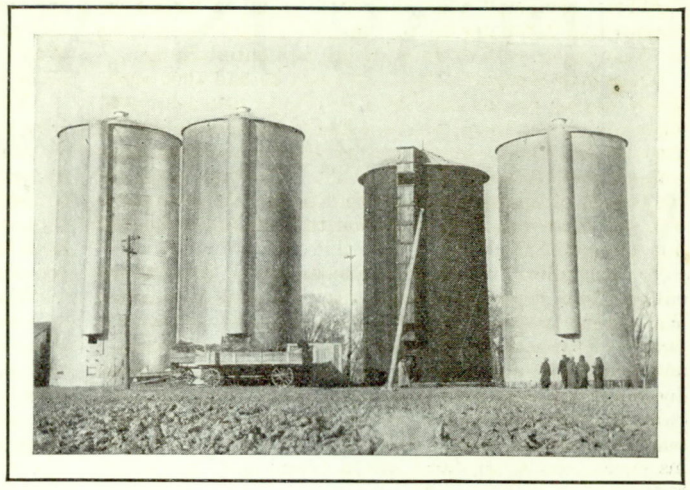
and careful attention throughout the growing season. At the close of the season the particular vine each contestant believed was his best should be pulled and hung up by the roots under a shed or somewhere out of the sun, where it could cure. Then, carefully tied up in cheesecloth so as to catch every shattering pea in transit, the vine was ordered sent to the railroad center for judging.

The first-prize vine was a remarkable one. When stretched out it was ten feet long and held 650 pods averaging five peas to a pod. The judge could scarcely believe his own eyes, and he counted three times before he could credit his own count. It was grown by Hannah Heersink, and her high record has never been surpassed in the valley.

The five counties of this great mountain valley employ an energetic and efficient agriculturist—E. H. Thomas—who coöperates with the State Agricultural College and the United States Department of Agriculture. He has organized the school boys and girls of this valley in pea clubs for the express purpose of discovering the best early type and best yielding late pea.

An early pea developed within the valley, by rigid selection, matures four weeks earlier than the common types. When developed to commercial quantities it will enable these stock farmers to put pea-fed hogs on the market before the Corn-Belt farmer can get his hogs ready, and will bring the valley farmer the best early fall prices.

The later pea, Mr. Thomas plans, shall yield fully thirty-five and if possible forty bushels to the acre. This will mean to the valley a net gain of more than a million bushels of peas a year, while the quality will be greatly improved by seed selection.



Mr. Sylvester's Silos, One Stave and Three Steel, Have a Capacity of About 500 Tons Each

This temporary soil-building crop has started a great feeding industry, but what has been the effect on the soil? Has the soil come back to its own?

R. G. Breckenridge, manager of one of the largest flouring mills outside of Denver, states that no grain section in the Rockies can surpass the average yield of good milling wheat obtained in the Monte Vista district. Yields in the district of forty, fifty and even sixty bushels of wheat to the acre, weighing sixty-one to sixty-three pounds a bushel, are certified to. R. A. Chisholm, of the Del Norte district, in the same valley, has certified field yields of 110 bushels of oats weighing forty-five to fifty pounds a bushel. Average yields of seventy-five to eighty bushels of oats are now common and the oats are not considered good unless they weigh more than forty pounds a bushel.

Pea land is now sought for either grain or potato crops. Potatoes following peas give yields greater than usual, are of better quality, and when proper seed selection methods are followed give a more desirable table tuber.

The pea crop has made for this mountain valley a reputation it could not otherwise have obtained. It has confirmed the cowman in his original good judgment in selecting this as a good place to grow and feed steers, has brought back the small-grain industry and has added the hog-growing and lamb-feeding industries as valley assets.

It has taught, in dollars and cents, the value of a legume in the crop rotation. It has brought in good farmers, built silos, added stock receipts, built towns and, in fact, has put the San Luis Valley on the commercial map.

THE SUBMERGED TENANT

What Happens When the Renter Becomes a Landlord

By Barton W. Currie

A SELECT gathering of several score of former tenant farmers met at Waxahachie to denounce the horrible-example tenant witness who had detailed his monumental woes before the Federal Commission on Industrial Relations. A large landowner called my attention to this meeting, which "had completely refuted the idea that the Texas and Oklahoma tenant suffered from economic submersion."

I looked into it. About a hundred indignant former tenants had met. All are now landlords. Their former condition of submersion might have been purely imaginary so far as any evidence of the past struggle appeared. They were high and dry on the upper crust of today, appareled in broadcloth and fine linen, calm and serene in the world's well-being.

They were as solemn in their discourse as owls, with never the flicker of a smile as they told one another how they had paid out and had bought of the richest cotton land of all America—the black-waxy acres of Ellis County, Texas. They had, practically every one of them, won their way up by the arts of diversification. They had climbed upon the stepping-stones of industry and economy. To quote the local paper's ardent chronicle of the meeting:

"The talks were inspiring to all that heard them, and if renters had been present they could not have helped forming good resolutions."

But, alas! no renters were present. No renters had been invited. There had evidently been no forethought of helping renters to form good resolutions. Back in the early days of their vassalage these modern landlords of the uninvited renters had suffered the same neglect.

When a hopeless old renter with nineteen children was asked what future he would prefer for his sons he answered promptly: "Farmers, provided they could become owners." And undoubtedly he assumed that once they became owners they would follow the approved social traditions and foregather exclusively on the landlords' high-and-dry right of way. All contact would be lost with the submerged fraction. It was ordained that the submerged should be left to the laws of chance and general averages.

> "—— When we give a mortgage it calls for $1200, though we only get, say, $1000, but the $200 is taken out as a commission, and then eight or ten per cent interest. The lowest rate of interest on personal property is 24. The note may call for less, but the commission is kept back. You can borrow $50 at the bank as cheap as $10. The average man knows this is usury, but believes that, to be honest, if he makes a contract he must stick to it."
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> *Extract from a letter written by an Oklahoma farm woman to the Department of Agriculture, published in Report No. 106, on the Economic Needs of Farm Women.*

In This Fifteen-Thousand-Bale Cotton Yard at Waxahachie, Texas ——

A brief review of what that little group of former ex-tenants had to tell one another in their smug little meeting at Waxahachie is both illuminating and entertaining.

There was Monroe Nelson, who said he had 1000 acres. While paying for his first farm he always asked his wife, when they got to town, what she had to have and not what she wanted, which reminds one of what a Michigan farm woman wrote to Secretary Houston: "The farm is run for the benefit of the farm and not the family. Of what use is it to buy more land to raise more corn to feed more hogs to buy more land?"

"J. P. Ballew," to quote the enthusiastic Waxahachie editor, "was repeatedly called for. He said he reached Waxahachie without decent wearing apparel and with a family to support. Felt proud when he borrowed money and bought an unlaundered shirt to wear. Rented from Joe Singleton nine years and seven years as share cropper. Said no man ever had a better landlord, better neighbors and business men to deal with. Of course, he had to his credit now a big farm and a brand-new, up-to-date residence."

J. B. Jackson, who came in in 1853, when a farm could be bought almost for the cost of one acre today, said he knew what it was to live in a house with puncheon floors and the only light a tallow-dip candle. He had broken raw prairie and suffered many hardships due to pioneer life. But he now owns 1400 acres.

Will Ralston said he came to Waxahachie when a boy. He grubbed land for Uncle Bat Davis and worked for some time as a hired hand. After years of saving he is now the owner of several hundred acres of good land and is independent.

"In each and every instance," to refer again to the local newspaper, "diversification had played an important part in providing money in paying for the farm. Each man who told his experiences said he had made it a practice to grow his own meat, to keep cows and to grow a garden. In most instances the cattle and horses used on the farm were grown there, thus reducing the expenses as much as possible.

"The Ellis County home owners resented the statement made by witness in the tenantry hearing at Dallas in which tenant witness laid blame at the door of landowners for the conditions now prevailing. They were agreed that indolence and lack of economy were responsible for the conditions that now prevail."

What a Landlord's Wife Said

When I came to seek more intimate information I learned that these prosperous former tenants had diversified intensively both in town and in country. They diversified as horse traders and money lenders, as storekeepers and bankers, as ginners and speculators in cotton, as chattel-mortgage and note brokers. They were keen, sharp and industrious. They worked when others loafed, and eighty per cent of them bought their land for less than half what they would sell it for today; indeed, some bought it for less than they now rent it for.

In the Black-Waxy Belt of Texas I met a big absentee landowner who charged up all the woes of the renters to indolence and who defended the landlord in all his acts. The conversation was running along in this customary rut when the landowner's wife stepped in and caught the gist of what he was saying.

"What constructive act," she broke in to ask, "has one of you landlords ever committed for the benefit or betterment of your tenants? Do you give them fit habitations to live in? You do not. What do you do for the poor miserable women of your tenants? Nothing, but double the burden upon them of raising children. More children and more children is what you demand of these women. Why? Simply to have more cotton pickers, more cheap labor on your farms.

"You boast of the schools you build, but what good are they when the children who should be in them are forced to pick your cotton? You say your tenants have every opportunity to become home owners, but what do you do toward giving them any pride in such a thing as a home? Can their children ever feel the desire to want to own a farm home after living in the miserable tenant shacks you provide?

"You say they are careless and destructive and it would be a waste of money to make these shacks habitable. That is merely an excuse, and a mighty poor one, for the stinginess of the landlord. You can see no sure profit in making these repairs; there is no ten or twenty per cent in sight; you need the money to lend on chattel mortgages and short-term notes. You are too blind to see that you might increase the efficiency, health and well-being of your tenants a hundred per cent."

Her husband did not murmur a syllable in reply. He looked pained and grieved and sorely distressed. He hauled out his watch and consulted it anxiously. And when he had finally made his escape with me he avoided comment on his wife's remarks, nor did he resume his voluble discourse on the landlord-and-tenant problem from the landlord's viewpoint.

When Governor Ferguson, of Texas, testified at the Dallas hearing he said that in his opinion absentee landlordship was responsible for most of the complaints of tenants.

"A landlord," he said, "can live like a lord on 350 acres of land. But he takes a notion that he must move to town and mingle in high society. Pretty soon that land won't support him. Consequently he goes back and raises the rent on the poor fellow in the country."

The governor estimated that in Bell County, where he lived, the tenant did not have one chance in fifty to become a home owner. Criticizing credit conditions, whereby land tenants give chattel mortgages for advances of food and supplies, he said: "The tenant cannot object to the exorbitant price. He cannot buy any place else. He must accept the price or starve. And often the chattel mortgage he gives in payment is cruelly drawn."

Lewis H. Haney, professor of economics of the University of Texas, regards the Texas homestead law, providing that no homestead of 200 acres or less can be mortgaged for more than the purchase price, no matter what improvements the owner puts on it, as a severe handicap to improving credit conditions in Texas.

"This law," said Professor Haney, "is a most serious restriction. In a general way it locks up a large part of the Texas farmers' assets so they cannot be made the basis of credit. This diminishes the amount of capital that can be attracted to the state. The law is an insurmountable obstacle to the organization of coöperative land-mortgaging associations, which have done so much good in Europe. As long-time loans require such security as land the homestead law makes the evil system of short-time loans and renewals too common. Loans and chattel mortgages are often too short, bear too high a rate of interest and afford too small a proportion of the value of the security to be desired.

"Under the exemption of homesteads large landowners are often compelled to borrow on farms that are not well improved, because their best farms are homesteads. This fact alone makes interest rates higher. On the other hand the small farmer is discriminated against in that he owns no land above the amount exempted; consequently he must mortgage his livestock and other chattels and buy supplies at credit prices.

"The homestead law is evaded. All unreasonable laws are. Through loan companies, sales are made when loans are really desired. We encourage the purchase of homesteads by allowing the land to remain subject to forced sale for the amount of the purchase price. Then we turn and prevent the home owner from prospering on his land by making it difficult for him to use his homestead as a basis for credit. This may force him back into the ranks of the tenantry."

Professor Haney suggested as remedies for the tenant problem education and coöperation among the progressive tenants and cash wages for the unprogressive. There should be closer relations between landlord and tenant, more stability and longer tenure. A coöperative credit system was sorely needed, he said.

"One-third of the farmers who borrow money," he said, "pay more than the legal rate of interest. The average amounts to about thirty-three per cent. Ninety per cent of the Texas tenants borrow money. Sixty per cent borrow from banks. Eighty per cent of the black-land tenants borrow from stores. Individual credits range from ten to a thousand dollars and the average interest rate in 1914 was twenty per cent."

An Owner Who Knows no Farming

Philip Getzendaner, of Ellis County, is a large landowner of the banker-landlord class. The nucleus of his land holdings came to him by inheritance. He has never farmed a square rod of ground. In my opinion he represents the sincere viewpoint of the business-man type of absentee landlord.

He admitted to me that he knew scarcely anything about agriculture, but was becoming deeply interested because of the success he was making of his first efforts to diversify with alfalfa and Sudan grass.

This young man was called as a witness at Dallas. In his testimony he said that his contracts with tenants called for one-fourth of all cotton and a money rental of four to five dollars an acre for grain; or half of all crops when he furnished teams, tools, and so on. About ninety per cent of these contracts are oral. He knew of no defects in the contracts that might be improved by law.

He thought tenant houses were large enough to house the average family, but admitted that the houses were not in repair. He believed landlords felt social responsibility for the sanitary housing of tenants. The schools were above the average.

He expressed the opinion that during recent years the tenant farmer has become more able to finance himself, hence is using banks where formerly he used the credit merchant.

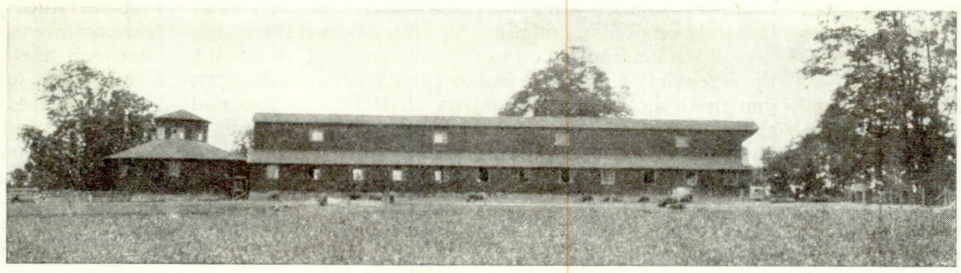
So far as constructive action is concerned, he proposed at length betterments along educational lines, home ownership and legislation dealing with questions of interest, usury, exemption, and so on.

This owner of 3500 acres of black prairie and master of the destinies of half a hundred tenants is a progressive young man so far as expressing ideas is concerned, but he prefers to sit back with the majority and permit the natural processes of progress to force their advances through the infinitely slow stages of educating and inspiring the coming generation. And when you come right down to bed rock that is practically all that can be done in handling our major social and economic problems.

EDITOR'S NOTE—This is the conclusion of a two-part story on the Tenant Problem by Mr. Currie.

There Were Stored, Early in November of Last Year, Eight Thousand Bales

PIGS IN THE BLUE GRASS



Sales are Held in the Circular Barn. The Long House Has Two Rows of Pens. The Second Floor is Used as a Dining Room on Sale Days

A Hog-Breeding Business With Personal Instruction for Every Buyer

By C. E. Gapen

WHEN you ramble down into the blue grass of Kentucky you just naturally expect to find horses—lots of horses—and colonels, and tobacco, and clear streams slipping over shelves of limestone, and miles and miles of gray stone fences and great trees that a thoughtful and contented people have allowed to stay. All these things are there, and many more. The horse, of course, still gets the front page in the newspapers, but the lowly hog is winning a big place in the blue-grass pastures and he is doing it because he is a profit producer and the climate seems to suit him to a T.

I wasn't headed for a hog farm—they call them farms down there, regardless of acreage—when I arrived in Kentucky, but one evening as I sat in the lobby of a Lexington hotel I heard, interspersed with talk of racetrack and stable, tobacco growers' coöperation and anti-whisky legislation, flattering comments on "the biggest pure-bred hog farm in the country, bar none." When a red pig can get attention and praise in such competition he is worth looking up.

That's how I happened to spend a day at the McKee brothers' 800-acre hog plant in Woodford County, Kentucky. Forest Home Farm they call it, but it might well be called Porkopolis, for there are nearly a thousand porkers, big and little, in the pens and pastures stretching along the Dixie Pike, the new motor road projected from the North clear through to Florida.

The McKee brothers, Jim and Frank, have been in the hog business for fifteen years. Their father, Doctor McKee, was a breeder of Thoroughbreds, and his seventy-three years are not sufficient to keep him from the track when the "ponies" are running. But the younger generation decided that year in and year out hogs were a bigger bet than race horses.

There is some gamble in the hog business, to be sure, but they are cutting the risks to a minimum. At the outset they experimented with three or four breeds, and they finally picked the Duroc-Jersey. They might have done as well with a black hog or a white hog, but they are convinced that red is the only color, because it happens to be on the right kind of hog, and there is no use starting an argument. Results talk, they say.

The Circle Instead of the Rectangle

This firm of blue-grass hog breeders started with the idea of producing the most efficient machines for making pork, and they think they have succeeded in large measure. Their hogs sell well at public and private sales, and much of their business is the result of former sales. The South is their big market, but their breeding stuff has gone to many states of the North.

"We started by getting the very best foundation stuff, regardless of price," the brothers told me. "Whenever we see a hog that we think would improve our herd we get him, if we can. Some years ago we bought Defender because we thought he was the best boar of the breed and he had the large size that is so much in demand. He was the only boar that was twice grand champion of the breed at the International Livestock Exposition."

This great boar is now dead, but the Forest Home herd is full of Defender blood. Boars sired by him are now in service in this big herd that is doing so much to supply good foundation material for hog breeders in the South.

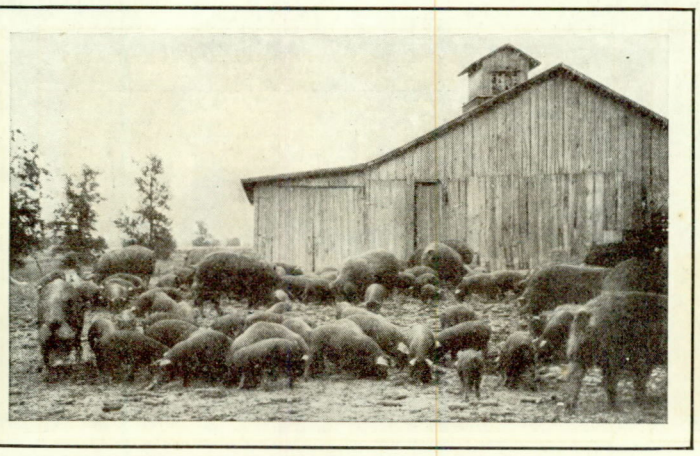
Frank and Jim McKee, aside from being good breeders of red hogs, are good farmers, good salesmen, good buyers, good talkers, good listeners. They keep in close touch with the work at the experiment station and are always on hand with their support when a movement for the betterment of farmers and farming is being considered. Frank is the head of the tobacco growers' organization in the Burley belt and a live wire in the Farmers' Union, taking a leading part in the management of the coöperative store and the farmers' flour mill. The boys are great corn growers, exhibits of Boone County White from their farm having repeatedly pulled down the best ribbons at the Kentucky State Corn Show.

The most conspicuous feature of this farm, if we pass by the thousand head of hogs, is the modern equipment that was recently put up at a cost of $5000. Just a day or so before I visited the McKees a wealthy man from Kansas City was there looking over the buildings with a view to duplicating them on his place. But do not get the impression that their barns and pens are adornments to please the fancy of a man of wealth. They were made for the sole purpose of raising hogs under sanitary conditions, with a low expenditure of labor. And Jim and Frank say they are a success.

The plant I am about to describe is only a small part of the entire equipment on the big farm. It was built for the accommodation of sows with their litters. The circle, instead of the usual rectangle, is the basis of the plan. In the centre is the feed house, since feeding makes up a large part of the labor necessary in caring for hogs. This house is twenty-six feet in diameter, is built of lumber, except the floor and the roof. The floor is concrete and the roof is heavy paper surfaced with fine gravel.

THERE are ten hundred hogs on this farm, but the story is not of mere bigness.
The feeding system is worth looking into.
The service to buyers is something unusual in the breeders' business.
There are some ideas for swine growers who have been having trouble.

On one side of the first floor is a thousand-bushel corn crib. The other side is divided into bins for storing feed. In the center plenty of room is left for a driveway and for mixing feed. There is also a watering trough connected by a pipe with a supply tank on the second floor. This second floor has a capacity for 120 tons of feed. The feed can be mixed there and shoveled down a chute to the bins below. The feeding of the hogs is figured down to a gnat's heel, but that will come later.



The Pigs are Not Allowed to Become Excessively Fat. They are Fed for Growth of Bone and Muscle

The second circle is made up of the feeding pens. There are twenty-five of these, corresponding to the number of pasture lots that radiate from them. These pens are ten feet wide, thirteen and a half feet at the front and fifteen and a half feet at the back. There is a wide open space between the walls and the roof, which insures good ventilation and plenty of sunlight on the floors. The feeder, standing outside, can note the condition of every pig. It is also an easy matter to throw in feed, such as soaked shelled corn, which is given to the youngsters before they are weaned.

Each pen has two doors, one opening into the court round the feed house and the other into the pasture lot. A metal trough, fastened to the floor by hinges, extends from the end wall to the door. The wall of the pen above the trough is hung on hinges and may be pushed in and locked by a sliding rod while feed is being poured into the trough. If there is any water left in the trough it may be removed by simply turning the trough on its hinges and dumping its contents on the concrete floor. There is seldom any feed left in these troughs, for the hogs are not overfed and consequently usually have good appetites.

These feeders and breeders want hogs with big bone, and they know that a hog needs plenty of mineral feed for this purpose and for keeping his digestive apparatus in good running order. Nailed to the end of each pen is a hopper divided into four compartments. Here the pigs get ground rock phosphate, charcoal, ground limestone and a mixture of ashes and salt—a bushel of wood ashes to half a peck of salt. Hogs that have access to these hoppers and receive well-balanced rations don't root enough to be troublesome.

Charts Tell Where the Feed Goes

The pasture lots that connect with the feeding pens average about half an acre in size. A twenty-nine-inch woven-wire fence, supported by steel posts, keeps the pigs where they belong. This fence alone cost several hundred dollars, but it is a good investment—it is there to stay as long as the house lasts, perhaps as long as Jim and Frank continue to raise red hogs.

Any man who has fed a big bunch of hungry, squealing pigs will realize the advantages of the plan and the conveniences for keeping the hungry ones at bay while the table is being set. Here at feeding time everything goes off smoothly and with dispatch. No overzealous pig gets between the feeder's legs and turns round while he is trying to deliver a pail of slop.

The feed is weighed and mixed in the circular barn, where the various feeds are conveniently arranged in bins along the wall. Charts on the wall above tell exactly how much of each feed and how many pounds of water go to each pen. The feeder, Charlie Hughes, has the record of each sow and litter. He knows how much they weigh, the number of days or weeks since farrowing, the idiosyncrasies of appetite, and anything else an observing stockman knows about his charges. So the feeding of twenty-five porcine families, comprising nearly 200 lusty appetites, is done with as much dispatch and freedom from friction as could be found in a well-managed hotel. But here there is no waste—efficiency rules. Jack Spratt and his wife wouldn't be in it with these scientifically fed platter cleaners.

The McKee boys believe that after proper feeding should come sanitation and exercise. The pens are open to the sun and air, but that is not sufficient. Occasionally lime is sprinkled in the pens, and the walls and floors get frequent spraying of germ-killing coal-tar dips. Thin crude oil, through a spray pump, gives the hog louse notice that he hasn't paid his rent. It is an easy way to do it and it doesn't cost much.

The problem of exercise bothers some hog feeders, but it is a simple problem on this farm. The scheme is nothing new, but it belongs here. The A-shaped portable houses, which are used for sleeping quarters, are placed at the ends of the pasture lots opposite the feeding floors. The sows and litters must take exercise to get to their meals and again before going to bed. The system works like a charm and requires no attention. The portable houses—twenty-five of them—are included in the cost of the circle-plan plant.

There have been diseases on this farm, to be sure, but the owners try to make it an unhealthful resort

for all germs except those that grow on the clover roots. Cholera has been on the farm more than once and has taken heavy toll on occasions. Consequently, the brothers have studied the disease and they have rather decided opinions. Not all hog growers agree with them. Some scientists do, but most of them do not. They believe the double treatment—serum and virus—is dangerous to themselves and to their neighbors. I have talked with other big hog growers who are just as enthusiastically in favor of the double treatment when given under proper conditions. It is not a weapon to be trusted in the hands of an amateur.

The McKee brothers have decided to pin their faith on sanitation at all times and the use of serum alone when there are indications of cholera. Some of their experiences in treating hogs are of interest to hog growers and scientists alike. Many outbreaks, supposed to be cholera, they say, are not cholera at all, but chronic enteritis caused by pushing too hard on feed for sale or show. The condition is most frequently met with in pure-bred herds. The ordinary farmer seldom overfeeds his animals. These are all opinions formed after considerable experience.

These men say that treatment for cholera when a hog is suffering from enteritis will frequently cause the hog's death through septicæmia. The experiment stations and the serum manufacturers, they say, are often blamed for sending out dirty serum when the only trouble is that the hogs were not in condition to be treated. One year very heavy losses on Forest Home Farm were attributed to this cause, although the first diagnosis was cholera. The hogs had many of the symptoms that go with that disease, such as lesions on the intestines, spots on the skin, kidney spots and scours.

The brothers have been studying the feeding problem industriously and now feel fairly safe from such serious trouble as they have met in the past. They figure that a young pig that once gets his feed-handling machinery badly knocked out is doomed to be a second or third rate pig for life.

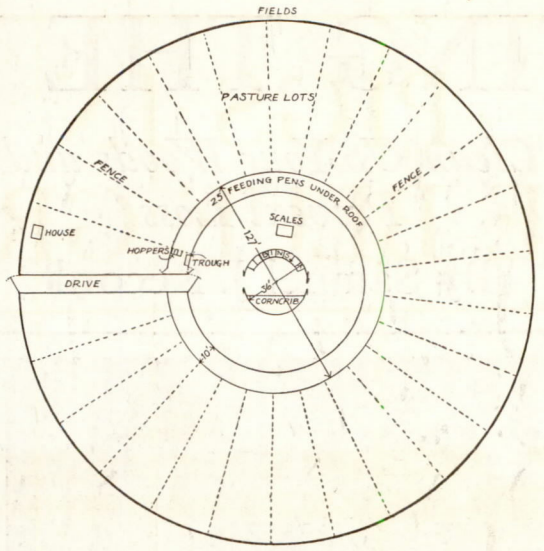
"Don't feed a pig as if he was a grown hog," they say. "A pig that is getting his mother's milk doesn't need protein feed. Give him a little soaked corn to work on. He is not prepared to handle much heavy or bulky food. How would a baby get on if it were fed on cabbage, tomatoes and greens? The baby would die, and that's what happens to baby pigs that do not get the care babies should have. We do not wean the pigs until they are ten weeks old. By that time they have become accustomed to grain feed and pasture."

In feeding hogs the McKees have gone to Professor Dietrich's system for the basis of their method. They have prepared elaborate charts showing the amounts of different feeds and water for hogs of various ages and weights. For instance, one of the charts is designed to supply the needs of a sow, weighing 300 pounds a few days before farrowing, and her litter. Every pound of feed and water to be given up to the time the pigs are ten weeks old is right before the feeder's eyes on this chart.

Rules Don't Replace Brains

The first line of figures across the page shows that on the seventh day before farrowing—or nearest to that date that can be determined—the sow gets 1.8 pounds of ground corn, half a pound of flour middlings or red-dog flour, all made into a slop with nine pounds of water. This amount of feed is given twice daily. She has the run of a small pasture lot. The next day a little bran is added and the amount is gradually increased up to the day of farrowing. The day before the pigs are born the sow gets only six-tenths of a pound of bran in nine pounds of water morning and evening. The table gives the exact amount of feeds and water for every day up to twenty-one days after farrowing and then for each week up to the tenth.

Charts have been compiled for all sorts and conditions of hogs. They are changed to accommodate crop changes on the farm and price changes on the market. The columns of figures give the impression that everything is done by a cut-and-dried rule, but that is hardly true. Conditions arise that make it necessary for the feeder to cut down on the ration or vary it a little, but on the whole feeding by columns of figures has worked very well on this farm—a rare thing, indeed, in the feeding of livestock.



Plan of the Circular Hog Plant. The Feeding Pens are All the Same Distance From the Feed Bins

RATION FOR SOW AND LITTER NO._____

DAYS BEFORE FARROWING	CORN		FLOUR MIDDLINGS OR RED-DOG FLOUR	TANKAGE (60 PER CENT PROTEIN	WHEAT BRAN	WATER		PIGS FARROWED	
	GROUND	SHELLED				SUMMER	WINTER	BOARS	SOWS
7	1.8		.5			9	10.5		
6	1.5		.5		.15	9	10.5		
5	1.2		.3		.3	9	10.5		
4	.9		.3		.3	9	10.5		
3	.6		.15		.4	9	10.5		
2	.3		.15		.6	9	10.5		
1	.0		.0		.6	9	10.5		
FARROWING DAY									
1						7.5	9.0	REMARKS	
2			.15		.15	8.4	9.9		
3			.3		.15	9.4	10.4		
4	.15		.4		.15	9.9	10.9		
5	.30		.6		.3	10.3	11.3		
6	.6		.6		.3	10.8	11.8		
7	.8		.8	.15	.3	11.2	12.2		
8	1.0		.8	.15	.3	11.7	12.7		
9	1.2		.9	.15	.3	12.0	13.0		
10	1.5		.9	.15	.3	12.5	13.5		
11	1.6		1.0	.15	.3	13.0	14.0		
12	1.8		1.0	.15	.3	13.5	14.5		
13	2.1		1.0	.15	.3	14.0	15.0		
14	2.2		1.0	.15	.3	14	15		
15	2.2		1.0	.15	.3	14	15		
16	2.2		1.0	.15	.3	14	15		
17	2.2		1.0	.15	.3	14	15		
18	2.2		1.0	.15	.3	14	15		
19	2.2		1.0	.15	.3	14	15		
20	2.2		1.0	.15	.3	14	15		
21	2.2		1.0	.15	.3	14	15		
WEEKS AFTER FARROWING									
4	1.6	.6	1.0	.15	.3	14.0	15.0		
5	1.6	.6	1.0	.15	.3	14.0	15.0		
6	1.6	.6	1.0	.15	.3	13.5	14.5		
7	1.6	.6	1.0	.15	.3	13.0	14.0		
8	1.6	.6	1.0	.15	.3	12.5	13.5		
9	1.6	.6	1.0	.15	.3	12.0	13.0		
10	1.6	.6	1.0	.15	.3	11.7	12.7		

Weight of sow plus litter 300 pounds. Ration to be fed twice daily. When on pasture omit the wheat bran.

Feed Charts Similar to This are Made for All Kinds and Ages of Hogs

The use of forage is, of course, a big factor in producing these red hogs at reasonable cost. Hog growers are so generally acquainted with the merits of the hog-his-own-harvester system that it is taken for granted that every progressive man in the business knows a thing or two about pasture crops. Here, of course, the persistent blue grass is used to a great extent, but it must be supplemented by other crops during dry weather and in winter and early spring. Rye is used a great deal to furnish late fall, winter and early spring feed. This is the only place I know of where rye is drilled in the pasture as a regular practice to produce early feed. In the fall the drills are run over the grass lots. Then there is green feed in winter and in spring before the blue grass is long enough to make a good bite. There are also fields of rape, oats and clover put in early in the spring and fields of rape of various ages. When pigs are on these crops the grain ration is cut in two.

Producing good hogs is not the whole game on this farm. The success of the grower of pure breds for breeding stock depends a great deal upon the way the animals are marketed and the treatment that the customer receives after he has his purchase home in his own pen. The old system was—and it is still commonly practiced—to sell the hog and leave the customer to his own resources, whether he knew anything about the way his particular hog had been handled or not. If a buyer was a beginner he might fail. Then he might buy again, but the chances were he would do his next gambling somewhere else.

A Pig That Came Back

The system practiced at Forest Home is based upon service. "We sell service with hogs" is the McKees' motto. This service consists in an answer-to-inquiry department. In the first place, the McKee boys recommend to the buyers of their pigs, especially if they are beginners, that they use the feeding charts, which are furnished free of charge. Then any question that the buyer wants to ask about the care of hogs is answered promptly.

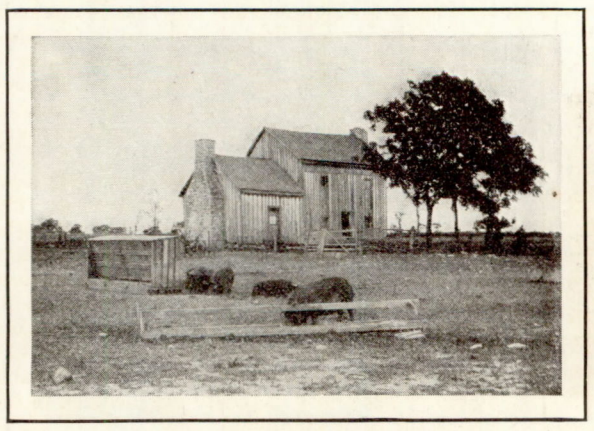
"We know this service to buyers has paid us handsomely," said Frank McKee. "Customers who fail for any reason, such as overfeeding, poor feeding, or failure to induce exercise, are likely to find fault with the man who sold them the stock. To keep satisfied customers, keep them going right. We estimate that eighty per cent of the hogs we have sold in recent years have been fed according to our system or a modification of it. I have in mind one man in Louisiana who bought twenty-seven sows last year. He used our charts and got an average of seven and three-fourths pigs to the litter.

"Results are not always so good. We sold a Defender boar to a man who overfed him, as beginners frequently do with pure breds. The pig got badly out of condition and his owner was dissatisfied. He then made a comparative test with a scrub. The scrub gained 150 pounds, while the well-bred pig put on only twenty pounds of meat. I afterward learned that the ration on which the boar was first fed had a nutritive ratio of one to two and a half. Our ration has a ratio of about one to five. He had overfed on protein, and nothing will put a hog out quicker.

"This customer wrote us that the boar was no good. I told him the reason for the failure and offered to give him another pig if he would follow the feed chart I would send him. He accepted, and the second pig stayed."

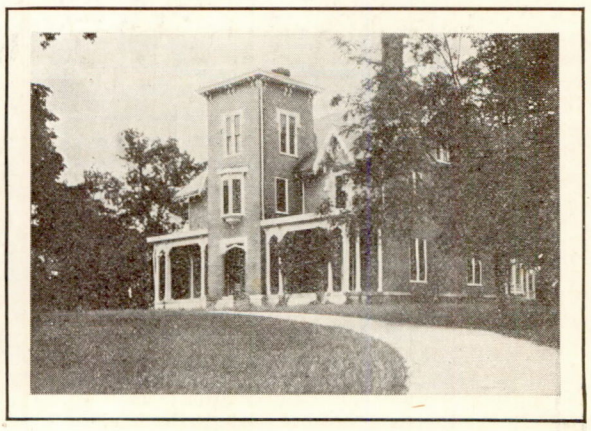
The service work takes up a great deal of time, but the McKees express no regret. Frank spends considerable time each day answering correspondence and keeping up the records of the herd. A stenographer arrives at the farm at eight o'clock each morning and works until five o'clock. The day I was there twenty-six letters were received from various parts of the country.

It looks as if selling hogs and service is a good plan. It works in other lines of business; why not on the farm?



House on the Farm Where the McKee Family Lived Two Generations Ago

Doctor McKee and His Two Sons. The Father Likes Horses and the Boys Like Hogs. Canes are Useful in Showing Animals



The Present Residence is Surrounded by Twenty-Six Acres of Grass and Trees

FIREPROOFING THE WOOD LOT

Clean Up Your Woods and Prevent Loss

By Samuel J. Record

A Specially Constructed Fire Line Paralleling a Railroad. This Line Once Saved the Forest Above it From Destruction

THE factory that is littered with highly inflammable material, that has no automatic sprinklers or other form of fire-fighting apparatus, that has no barriers to check the progress of the flames, is justly condemned as a fire trap. The owner of such an establishment courts disaster and deserves no sympathy if his plant is destroyed.

How about the woodland owner who leaves his ground covered with combustible slash, who takes no precautions of any kind against fire, who makes his woods a tinderbox ready for any stray spark, who endangers not only his own property but that of the entire community? Shouldn't he be ranked in about the same class as the factory owner?

In the cities there is a system of inspection designed to eliminate unnecessary fire risks. The owner of the factory just described would probably be advised to reduce as much as possible the amount of inflammable material, to install adequate fire-fighting apparatus, and if possible to rearrange the interior so that a fire could be localized or at least retarded until the arrival of the fire department.

To make the wood lot reasonably fireproof, prepare to follow the same advice. Clean up your woods and try to get your neighbors to do likewise. Take out dead trees, old snags and dry tops. Don't attempt to remove the leaf litter and the undergrowth, for the leaves enrich the soil and keep it moist, while the undergrowth may supply your next generation of trees. If a railroad is near you see that its right of way is kept free from inflammable material. If brush and rank weeds are cut along the highways, insist that they be burned or otherwise disposed of. Not infrequently one sees these fire traps along the roadside ready to ignite from the first carelessly discarded match or cigar stub.

When you cut timber dispose of the brush. There are several ways of doing this. The best method, in the case of evergreens such as pine, spruce and hemlock, is to pile the brush and burn it. This requires time and care, but if properly done it leaves the woods in good condition. If logging is done during the dry season the brush may be piled when convenient and burned at a favorable time, such as during damp weather or after the first snowfall.

Assume That a Blaze Will Start

If you sell your timber on the stump put into the contract a clause that the buyer must pile the brush; then see that he does it properly. The piles should be small and compact, with the small brush on the bottom and the larger pieces on top. They should be located in openings or other places where the fire will not scorch the remaining trees.

The tops of hardwood trees are mostly large, heavy and awkward to handle, so that piling and burning are difficult and expensive. A good plan is to utilize as much of them as possible for cordwood and then to lop and scatter the remainder.

This Sort of Fire Trap May be Found on Many Farms

The idea is to bring all the brush into close contact with the ground, so that it will more readily absorb moisture, will dry out less in summer, and will rot more quickly than when propped high above the ground. Care should be taken to keep larger branches away from living trees, on the principle that fire is hottest where two pieces of wood are in contact.

Clean up your premises, but don't stop there. Assume that a fire will start, and then ask yourself what you are going to do about it. If fire starts in a room in a modern skyscraper, closing the door shuts it off from the remainder of the building. Why not utilize the same idea in protecting your woods and fields? Localize the fire by means of fire lines.

A Fire Line Improperly Constructed. The Logs, as Well as the Undergrowth and Leaves, Will Let the Fire Cross the Line

A fire line may be a road, trail, river or other stream, a plowed furrow, or a specially prepared line. A small surface fire may be stopped entirely by a road or even by a path. But fire lines are useful even if they do not stop fires, for they serve as aids in controlling fires and preventing their spread. If back firing is necessary it can often be done best from the fire line.

Fighting Fire With Fire

In most wood lots there are a great many old wood roads, often badly overgrown with weeds, brush and trees. If these are kept clear they will prove of great value in fire protection. Once cleared they can be kept in condition by running a spike-tooth harrow over them once or twice a season. If these roads do not form a network they should be connected at intervals with specially constructed lines.

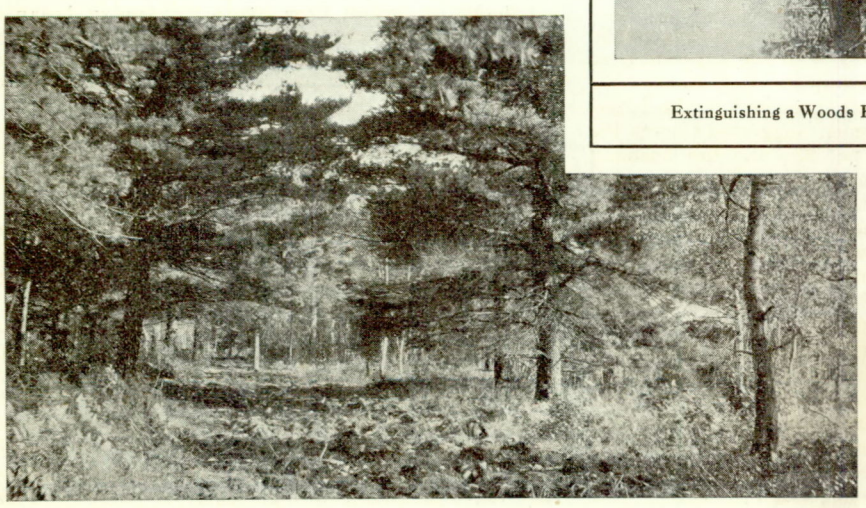
Where there are no roads, or not enough of them, or they are not properly located for protection, fire lines should be made. There should be one between your wood lot and that of your careless neighbor; they should be placed round recent cuttings; along railroads and in some cases along the highways. The ideal fire line is a completely cleared strip at least six feet wide, from which all trees, brush, stumps and logs are removed, exposing the mineral soil. Such lines require considerable work to construct, but once made can be kept in condition by occasional harrowing. In fairly open woods where the soil will permit, good results can be secured from a few plowed furrows.

In other days when timber was not valued so highly as now no one cared much whether the woods burned or not, so long at least as the damage was confined to the woods. If a fire started it was left to the rain to extinguish it; the settler's concern was to protect his fences and buildings. The easiest way to do this was to start a counter or back fire all round his place. This was bad for the forest, but was usually effective in saving the farm.

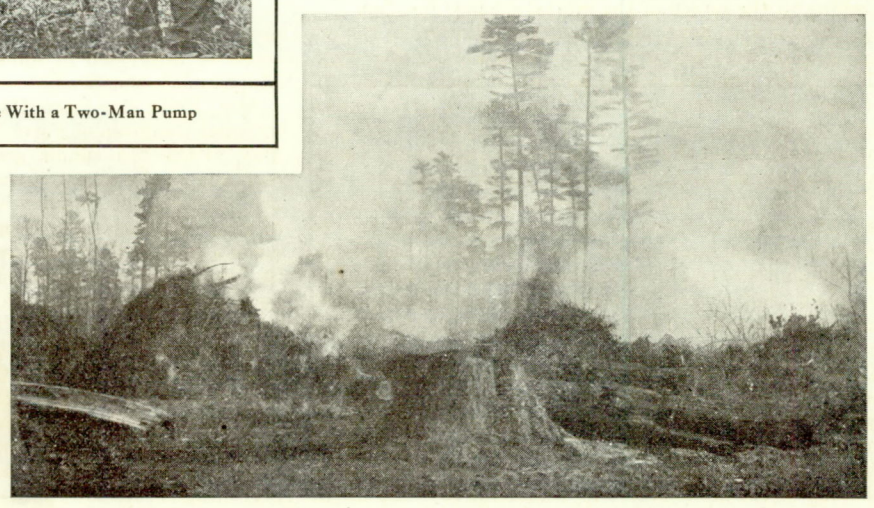
This idea of fighting fire with fire has been handed down from father to son; it is the universal method. In proper hands it is a good remedy, but it should be used sparingly and as a last resort. It necessarily involves deliberate burning over of property, and often highly valuable property at that.

Fire wardens recognize the danger of indiscriminate back firing. One state forester has issued these instructions to his force: "Consider the rights of property owners, but don't let them back fire to protect their own

Extinguishing a Woods Fire With a Two-Man Pump



A Plowed Fire Line to Control Surface Fires



Burning Brush in a Minnesota National Forest

Extinguishing a Wood Fire With a One-Man Spray Pump

property unless this will be for the general good. Threaten arrest if they persist in back firing against your judgment. Back fires should be authorized only by the man in charge. Many a forest fire becomes uncontrollable because the owner of fences or of a few cords of wood attempted to save them in a situation where it is clearly impossible to do so. Or a rancher protects his ranch by back firing round it and pays no attention to what becomes of the back fire. . . . Every effort will be made to protect all interests, but selfish interference with a plan of action drawn up for the good of all will not be tolerated."

Counter fires are usually unnecessary if a fire is attacked in time. If the woods are in proper condition the fire will usually creep along the surface. It will not be hot enough to kill the larger timber and the fire fighters will be able to get close up to it and put it out. To get results fire-fighting apparatus is necessary. A pine top or a wet gunny sack may serve to beat out the flames, but the first puff of wind may start the blaze anew.

One of the most satisfactory devices for putting out a surface fire is a portable pump that throws a small stream of water at high pressure directly to the heart of the fire. It is made to be operated by one or by two men, and it is remarkable how efficiently it works. With eight gallons of water a fire on a line 1400 feet long has been extinguished. When it is considered that the cost of the two-man pump complete is only about twelve dollars and the smaller size about five, and that it is adapted to general spraying as well, it would seem that no farmer should be without one. The ordinary

A Seven-Year-Old Plantation of White Pine, Showing Fire Line Running Through the Tract

barrel sprayer may be used along roads and fire lines and in open woods, but not on hillsides or brushy areas.

The use of such apparatus calls for a water supply, and in dry weather, when fires are most likely to occur, water may be scarce. This contingency should be provided for. One method is to get a number of oil or spirit barrels and bury them flush with the ground at convenient places. In the winter they should be filled with snow and left open to the rain. A little oil applied to the surface of the water will keep out mosquitoes, if that is a matter to be considered. The barrels should be inspected in dry weather and kept fairly well filled, even if it is necessary to haul water. Barrels sunk in marshy places or near springs will probably need no attention at all. This may seem like a great deal of trouble, but it affords a lot of satisfaction when it is done.

Another tool that is needed is a heavy rake. The common garden rake is usually too light for this purpose.

The First Pack-Saddle Outfit for Putting Water on Surface Fires

The best one yet devised is made by bending at right angles about three inches of the tines of a long-handled spading fork. With this tool it is possible to rake out litter and leaves from among stones and out of corners without danger of breaking the rake. It also has its use on the farm for cultivating and for potato digging.

Care should be taken, however, that fire-fighting tools have a special place where they are kept when not in use, always ready for emergency. Prompt arrival at a fire is half the fight, and there should be no delay occasioned by lost or misplaced equipment.

The whole proposition of making the wood lot proof against fire is simple if approached in a systematic, businesslike way. Without fire protection tree growing is too hazardous to be justified. A forest plantation costing from ten to twenty dollars an acre may be completely destroyed by a single fire. Since growing trees cannot be insured against fire, the owner must carry his own risk. It is only a matter of common sense that this risk be reduced to its lowest practicable point.

If a farmer exercises proper care in starting fires, in clearing out roads, in disposing of brush and slash, in keeping a careful watch for fires, and in keeping prepared to extinguish them promptly, his wood lot is safe. Another essential measure in the protection of small tracts is to secure the coöperation of owners of all the neighboring tracts in watching for fires and in mutual assistance in extinguishing them, no matter on whose land they start. Take the matter up with your state forester or fire warden, who is always ready to help.

Putting Cherry Town on the Map

FIND Otero County on your map of Colorado and place your finger on the small ring in the west-central part labeled "Manzanola." Now color that little circle a deep cherry red. You owe this little act of official recognition for two reasons: First, because Manzanola was painted red one day a year ago by some 5000 Coloradoans wielding some 2600 juicy, trickling cherry pies. Second, because this little village, by coöperative methods, has put itself on the map, figuratively, as "Cherry Town"—the center of one of our largest cherry-producing districts.

Manzanola's cherry rise began ten years ago when a sample of its best fruit was awarded first prize at the St. Louis World's Fair. But to the idea of Cherry Pie Day the community owes much of its reputation.

On Cherry Pie Day last year the whole countryside, 2000 strong, with 3000 visitors from all parts of the state, gathered to do honor to the cherry pie—Manzanola's emblem. Armed with the key to the city and marching to the music of the official Cherry Pie Day song, the dainty Cherry Queen led her followers to the pie counter and there ate a toast to Manzanola's big crop.

Twenty-six hundred cherry pies went down that day in testimony to the cherry plenty. There was a whole one to every comer, free, so long as the pies lasted! And had Manzanola guessed that 5000 persons would come to celebrate that day it would have had a pie for every one.

New York, even, had its representatives—two women, one a Manzanola orchard owner, who came all the way to celebrate. It was fun to watch them. Palming pies schoolboy fashion, these two Easterners soon lost their identity in the crowd that surged forward as the cowboys spurred their ponies on in the races and surged back as the greased pig came too close.

It was Manzanola's second annual get-together day. Cherry Pie Day brought its fun, to be sure, but it was for business reasons that the celebration was tried for the first time last year. Manzanola, in a rich spot of the fertile valley of the Arkansas, was destined, its owners believed, to be one of the greatest cherry-producing districts in the country. Already it had an annual output of $40,000 to $50,000 worth of cherries, bringing premium prices. But distinction wouldn't come until the cherry-eating public could be impressed in some way with the superiority of Manzanola's cherries.

Mrs. Belle van Dorn Harbert, president of the International Congress of Farm Women, suggested Cherry Pie Day to the Manzanola growers. She and her husband own one of the oldest cherry orchards in the county and are, perhaps, the founders of the cherry industry in this district. For extensive planting of cherry orchards began when a crate of their cherries was awarded first prize at the St. Louis Fair, and received further boost when the Harberts announced a profit of $2700 from a three-acre orchard in one season.

In the past ten years the cherry acreage in the Manzanola district has increased from 200 to 2000 acres. Last season 80,000 trees—between 600 and 700 acres—were set. But for a severe hailstorm—the first bad storm of the kind to visit this section—Manzanola would have harvested $50,000 worth of cherries last season, though only a small percentage of its 2000 acres is old enough to bear.

As proof of Cherry Pie Day's effectiveness as an advertiser two incidents may be cited: One company in Chicago, hearing of Manzanola's fine fruit, took $30,000 worth of cherries in a lump. And a New Yorker bought a Manzanola orchard by cable from Antwerp, Belgium.

The fruit growers' association, an organization with fifty members, markets the fruit grown near Manzanola. Horace B. Dye, the sales manager, is also mayor of Manzanola. In addition to this association the Otero County Horticultural Society, one of the strongest farmers' organizations in the state, exists for the support of fruit farming. An expert horticulturist, paid by the county, is on the job at all times.

As yet the fruit growers' sales manager has not had to give any time to finding markets. Buyers come to Manzanola unbidden and take everything at the growers' prices. It is with the sale of apples and cantaloupes and other fruits that the manager is concerned. If Manzanola ever produces too many cherries a local cannery, already established, can take care of them.

With the rapidly increasing acreage of cherries Manzanola, in two or three years, will double its present output. And in a very few years more the cherry yield will probably exceed the apple crop. One season not long ago Manzanola marketed 500 cars of apples, netting the growers $200,000.

Ordinarily it is thought that a cherry orchard ten or twelve years old is about ready to be chopped out, but the Harberts have three acres of sixteen-year-old trees that bore twenty gallons to the tree this season, in spite of damage by hail. Furthermore, Manzanola cherry orchards begin bearing very early. C. A. Wood has trees set only three years that yielded one and a quarter crates to the tree last year. The fruit brought $2.25 a crate.

Manzanola's orchards all are under irrigation, water being taken from the Arkansas River. The two most popular varieties of cherries planted are Wragg and Montmorency. From 120 to 130 trees are set to the acre. When the orchard is young sugar beets and cantaloupes are grown between the rows, and alfalfa is used when the trees are large. In the production of sugar beets Manzanola growers have taken premiums for high sugar percentage and large tonnage, and their cantaloupes, too, have won many blue ribbons.

HARLAN D. SMITH.

EDITORIAL

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A COMPLETE SIX MONTHS' INDEX, ISSUED IN JANUARY AND JULY, WILL BE MAILED UPON REQUEST

HARRY A. THOMPSON, EDITOR

J. CLYDE MARQUIS, ASSOCIATE EDITOR

Wheat Prospects

WHEN the situation in the wheat market was reviewed in these columns early in the year it was pointed out that favorable prospects would add approximately 80,000,000 bushels to the country's total crops at the next harvest. The Government report on wheat prospects early in June states that the promised increase is about 60,000,000 bushels. Reports of extensive damage by chinch bug and Hessian fly are minimized, and final reports will probably show that the losses from these causes are less than estimated.

Conditions have been almost ideal for spring wheat, and the first Government reports show that the increase in acreage was close to ten per cent. Conditions were such that the yield of spring wheat should be nearly 70,000,000 bushels greater than last year.

Such an increase in the crop would ordinarily seriously depress the market, but the fact that the Russian surplus is still without an outlet through the Dardanelles tends to equalize matters; and so long as the Turks control this waterway the American price of wheat will be maintained nearer the average of the past few months.

When the new crop report appeared at the beginning of June the market declined about four cents, but it quickly returned almost to the figure reported before the news came out. There was said to be considerable surplus still in the hands of growers who had an eye on two dollars a bushel. In the face of the new crop, however, much of this is now being moved.

The acreage of winter wheat sown this fall will undoubtedly be large, since a period of relatively high prices is usually followed by at least two crops of large acreage. The man who has stuck to his regular rotation stands to win, however the market turns.

Direct Buying of Livestock

BIG central markets, which offer means of putting farm products before a large number of competing buyers, have been a potent influence in stabilizing prices and in facilitating the free operation of the law of supply and demand. Where there are many buyers, provided they are not bound together by price-fixing agreements or "gentlemen's agreements," the seller has every opportunity for getting what his product is worth. Long experience has proved this to be true.

Experience of some producers, which goes to prove the same point, shows that staple products that are sold in the country to representatives of companies in the large consuming centers do not bring the most satisfactory prices. The wool growers know what this means. They have been taking what the wool buyers offered, for they knew that competition was not a thing they could depend upon in their isolated location. Efforts are now being made, through such concerns as the National Wool Warehouse and Storage Company and by men who advocate the classification and grading of wool, to put the sale of this product on a basis of greater and surer competition.

While this work is going on among the wool producers we find that the great packing companies are taking steps to increase their country buying—a move that, if developed to any great length, can have no other result than the destruction of competition in the sale of livestock. It cannot be beneficial to the man whose business is the production of meat. The packer must pay the expenses of this buyer, but he will take it out of the producer. The natural tendency is to buy at the lowest price. There will be less competition in the country than on the big markets where all buyers and sellers come together.

The great central markets for livestock are the meat producer's greatest security against unfair treatment. The livestock commission man is a middleman, but he is not one that can be spared.

Kansas Takes Inventory

THE nineteenth biennial report of the Kansas State Board of Agriculture is a volume replete—to the extent of 1024 pages—with evidence of the continued and cumulative prosperity of the farmers of the Sunflower State. In his brief introduction to this husky report Secretary Mohler records the fact that the biennial period 1913–1914 was the greatest in the history of Kansas. Farm products were worth $618,000,000, though only a fraction more than a third of the state's entire area was under cultivation. There was that now famous 181,000,000-bushel wheat crop, nearly twice the state's best previous record, and worth to the farmer an average of 83.78 cents a bushel. When threshing began last July the price of wheat in local markets sagged round sixty cents; by November it had scaled up to ninety-eight cents. Forty-four per cent of the crop—79,616,000 bushels—was still in the growers' hands in November, and Secretary Mohler estimated in a footnote that the hold-over wheat brought an average of one dollar and twenty-five cents a bushel.

It is pointed out with restrained enthusiasm that this Kansas crop was 19,000,000 bushels more than the entire wheat output of Canada, also that it represented twenty per cent of the wheat yield of the entire United States.

This comprehensive Kansas inventory contains a ninety-one-page chapter on Kansas coöperation. There are more than two hundred pages of statistics of counties, showing population, acreage, production and livestock and their values. There are hundreds of pages on irrigation by pumping, on farm management, on domestic economy, the soil, field crops, livestock, dairying, poultry culture, and so on. The Yearbook of the United States Department of Agriculture is a dwarf by comparison, nor is it so well bound or printed. Surely this Kansas volume is a pacemaker—and why should it not be, issuing as it does from the pacemaking state of Kansas?

Trees to Save Roads

FOR mileage of good roads, Wayne County, Michigan, claims first place in the United States. This county lies round Detroit, the automobile city, and modern roads have been built under the stimulus of the motor industry.

They have been built so fast, and in such level country, that a movement is now afoot to make them more beautiful. Trees are either lacking, or have been trimmed to accommodate wires, or have been otherwise abused, allowed to decay, and cut down. Wayne County proposes to have more road beauty by planting and taking care of roadside trees, and as an object lesson points to the part trees are to play in Uncle Sam's national highways.

The tree hanging over the road is certainly a thing of beauty. And any road engineer will tell you it is something more. He knows that the tree-shaded stretches of gravel or waterbound macadam highway can be kept in good condition for twenty-five to fifty per cent less expense than places in the same kind of road exposed to the sun. Shade conserves moisture. The road under a tree never dries out so much as that in the open. So the dust made by traffic is not so easily blown away, and trees do an immense work in keeping the road together.

This is so well known in some localities that all roadside trees of more than certain size, even though the actual property of owners of land upon which they stand, are under the protection of tree wardens.

The low growths of brush that sometimes spring up close to wheel tracks along neglected country roads of dirt may be harmful because they shut off sun and wind during wet weather and prevent drying out mud to a degree that facilitates travel. But big trees with limbs high enough in the air to permit air drainage are always beneficial, even on such a back road, and worth a great deal of money for the road protection they give.

Roadside trees are something more than a background. They are a vital part of the road. When this fact is added to the plea for trees as road beautifiers it adds to the force of a roadside tree movement.

The Farm Labor Market

AN EARLY summer study of the labor market has brought forth the prediction from manufacturing circles that record high wages are impending for manual labor of all sorts. This prediction, of course, is based upon the supply of labor in sight. Last autumn we had with us the untold legions of unemployed, due to the stagnation of industries and attendant causes. At harvest time there were labor gluts in some regions and scarcities in others. States and communities advertised independently for harvest hands, without regard to what their neighbors were doing. The Federal Labor Bureau had begun the establishment of its employment agencies, but they were still on an uncertain experimental footing.

We are now told that the Federal Labor Bureau is eminently better qualified to advise the farmer concerning the availability of harvest hands than last year and that all requests for information and assistance will be met. With enormous crops in sight the farmer should begin early to provide for his need for harvest hands. He should range round in the local field and learn what conditions are or are likely to be when he will be pressed for time to garner his crops. Great manufacturing industries are beginning to feel the scarcity of labor. With immigration suspended and tens of thousands returning to their native lands to take up arms, there is likely to be no relief from the scarcity for many months. For the farmer, to be forewarned of possible embarrassments is to be forearmed.

PROGRESSIVE AGRICULTURE

What the Government is Doing for the Farmer's Business and Home

New Lime-Sulphur Formulas

LIME-SULPHUR wash for controlling various fruit insects, particularly the San José scale, has become indispensable to progressive orcharding. Consequently the Department of Agriculture and the various stations are constantly experimenting to improve the quality of this insecticide and to cut down the cost of its preparation.

Within recent years a number of lime-sulphur concentrates have appeared on the market and orchardists have begun to prepare the wash in concentrated form for their own use and sometimes for the use of the neighborhood.

Recent experiments conducted by the Department of Agriculture have resulted in hitting upon formulas and methods that produce an excellent wash, the cost of which is relatively low.

"The 50–100–50 formula has been generally recommended for the preparation of home-boiled concentrated lime-sulphur solution," reports E. W. Scott, of the Federal Bureau of Entomology. "The method of preparation is to boil together for fifty minutes to one hour 50 pounds of lime, 100 pounds of sulphur, and water to make 50 gallons of the concentrated solution. A good grade of fresh stone-lime containing not less than ninety per cent calcium oxide is necessary for the best results. Hydrated lime is sometimes used, but it is necessary to use a good grade and at least twenty per cent more of this lime, as it contains a high percentage of moisture.

"Place enough water in the cooking vessel to finish with 50 gallons of the solution. Bring the water to the boiling point, start the agitator, if the plant is equipped with one, then put in the lime and immediately add the sulphur. The mixture should be stirred vigorously either mechanically or by hand until the lime is slaked. Agitation should be continued throughout the time of cooking, which should not exceed one hour.

"If the solution is to be barreled without filtering it should be drawn off immediately and allowed to run through a thirty-mesh strainer into the barrels. The agitation should continue until all the solution is drawn off, so there will be an equal distribution of the sludge in the different barrels."

Mr. Scott's experiments brought out the point that a highly concentrated lime-sulphur solution may be made by using lime and sulphur in the ratio of one to two, but with reduced quantities of water. The formula used in his experiments is as follows:

Fresh stone-lime	80 pounds
Commercial ground sulphur	160 pounds
Water to make the finished product	50 gallons

"While there is about fifty per cent in volume of sludge after allowing this solution to settle for twenty-four hours, there is only about five to ten per cent volume of insoluble materials. Solutions that are prepared by this formula should test on an average thirty-three to thirty-four degrees Baumé.

"Commercial ground sulphur can be bought in carlots for about $1.50 a hundred pounds, and lime for about sixty cents a barrel. At these prices a barrel of the highly concentrated solution can be made at the following cost:

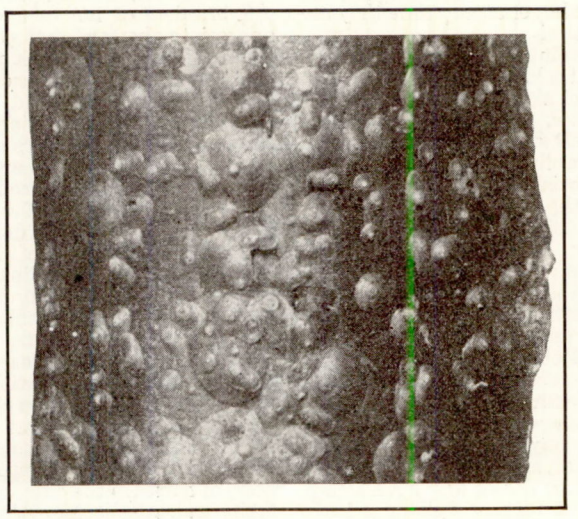
80 pounds lime, at 60 cents a barrel	$0.20
160 pounds sulphur, at $1.50 a hundredweight	2.40
Labor and fuel, estimated	.70
Total cost per barrel of 50 gallons	$3.30

"This does not include interest and wear on outfit, and cost of containers for storing. At the foregoing prices of ingredients the high-test concentrate would cost about ninety-eight cents more a barrel than the lower-test concentrate made by the 50–100–50 formula."

Labor Management in Haying

THE Federal Office of Farm Management's hay specialist, H. B. McClure, has given study to the problem of harvesting hay under the most economical system of labor distribution. This study is of value to farmers who grow hay on a small scale in the East.

This specialist considers three methods of harvesting hay: First, when the hay is cut in the forenoon and hauled in the afternoon; second, cut in the afternoon and hauled the next afternoon; third, cut in the morning and hauled the next afternoon.



Lime-Sulphur Wash is the Sovereign Remedy for San José Scale

Assuming that the crews used for hauling will require the same number of men in each method, say three, he whittles down his findings to the summary in the accompanying box.

"Method No. 3 is by far the most efficient one, as it requires fewer men and there is less loss of time in the forenoon, while the same amount of hay will be made as in the other two methods—about six acres. This method is adapted to a fairly heavy yield containing considerable clover; hence the necessity of leaving it one day in the swath to cure."

METHOD	WHEN CUT	TIME IN SWATH (24-HOUR DAY)	NUMBER MEN IN A. M.	NUMBER MEN IN P. M.	UNEMPLOYED MAN LABOR IN FORENOON (DAYS)
No. 1	A. M.	¼ day	1	4	1½
No. 2	P. M.	¾ day	0	5	2½
No. 3	A. M.	1 day	2	3	½

Progressive Livestock Campaigns

IN HIS last annual report Secretary Houston, defining the Department's policy in meeting the situation as regards the shortage of beef, said:

"It is evident that we have been considering the meat supply of the nation too exclusively in terms of the big ranch and of beef animals. Unquestionably the largest hope for a considerable increase in our meat supply lies in four other directions: First, in a more satisfactory handling of the public grazing lands; second, in systematic attention to the production of beef animals in the settled farming areas of the country, particularly in the South; third, in increased attention to the smaller animals, such as swine and poultry; and fourth, in the control and eradication of the cattle tick, hog cholera, tuberculosis, and other animal diseases and pests."

Pursuing the Secretary's policy for increasing the amount of livestock in the South, the Division of Animal Husbandry has been conducting educational campaigns throughout the tick-free areas. As rapidly as a section is relieved of tick quarantine the livestock agents begin feeding and breeding experiments to demonstrate the value of good blood and careful management of the animals themselves.

The plan of coöperative buying and selling of beef animals has been inaugurated with success in many sections. Now the Division has gone a step further in this campaign and has just concluded a successful feeding demonstration in South Carolina.

For three days in April there were sales of well-fed beef cattle at Rockhill, Greenwood and Winnsboro. Buyers came from the large packing houses; the sellers were small farmers who had fed their stock under the advice of the livestock demonstration agents. In all about 200 head were sold.

These animals were not necessarily pure breds; they were the ordinary type of cattle found on small farms that have just been freed of ticks.

For 120 days the animals were fed on individual farms. The rations consisted of cottonseed meal, hulls and farm-grown roughage. No silage was fed. From three to five pounds of cottonseed meal was fed each day to each animal, with four and a half pounds of hulls to each pound of meal.

When cottonseed meal was bought for this experiment it was selling at about twenty-four dollars a ton. Hulls were bought for four dollars and fifty cents to five dollars a ton. The average cost of feeding each animal for the period of 120 days was twelve dollars. The cost actually ranged between nine dollars and fifteen dollars.

When the feeding was over, the small lots of animals—from four to five were fed on each farm—were driven to the sale points and graded by the agents. Buyers were on hand to bid. Here are the weights of some of the animals sold at Winnsboro and the prices brought by them:

	POUNDS	CENTS
1 bull	1115	5.00
2 heifers	1430	5.00
1 heifer	665	5.00
4 steers	1420	6.50
3 oxen	2270	5.25
3 oxen	2330	5.50
2 oxen	1660	4.25
1 bull	800	5.00
1 bull	1190	5.00
1 bull	1190	5.00

At Rockhill twenty-six head were sold as follows:

	POUNDS	CENTS
6 Angus steers	5970	6.75
2 steers	1660	5.35
3 cows	2530	5.10
3 cows	2000	5.00
1 bull	1190	5.00
11 cows	6695	4.50

"All this stock was of the sort that is usually marketed in the fall," explained the expert who attended the sales; "just cull stuff that would not have been carried through the winter because the farmers were not inclined to buy feed.

"There was hardly a disappointed man in the whole number who coöperated for this new departure in stock raising, and now we have all the coöperation we are looking for to extend this work next year.

"In this work another season we expect to use expert salesmen when the cattle are sold—the agents did their work well, but when you are selling to expert buyers you need a man in charge of the sales who has had a lot of experience in the business.

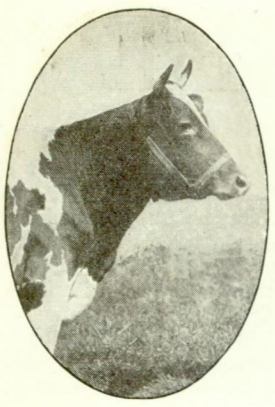
"Next year we plan to establish four sales centers in South Carolina. The railroad agent with whom we have talked has promised to get his road to build adequate yards so that we can concentrate the shipments and properly grade the animals.

"We had all sorts of handicaps this year; but we've started the small farmers to feeding small lots of animals and they're satisfied that they can make money at it.

"Next year the work will be pushed in North Carolina, Georgia, Arkansas, Tennessee and Mississippi. The first experiment panned out even better than we expected."

Feeders and Buyers at Rockhill, South Carolina, for the Cattle Sale That Wound Up a Coöperative Feeding Experiment Inaugurated by Uncle Sam

Live Items About Livestock



Fruit and Livestock

A STOCK show in a fruit-raising region, actively promoted by fruit men—rather odd, one would say. Not so, according to the fruit men engaged in the enterprise, who have joined in a statewide campaign for more livestock on fruit farms in the Pacific Northwest. The Cascade International Stock Show, which will be held next November, in North Yakima, Washington, they consider a means to the end.

The Cascade International Stock Show Association was organized last January, and its present membership of more than 200 includes leading fruit men of the Pacific Northwestern valleys. Stock experts from all over the West and from as far east as the Mississippi Valley will act as judges at the first show, where the fruit men will display dairy cattle, both fat and feeding classes of beef cattle, sheep, swine and horses. The pledged prizes aggregate $15,000, and one fruit man of the Yakima Valley has donated as much grape juice as will meet the needs of the opening banquet, at which hundreds will be present.

The impetus to stock raising in the Western fruit valleys is of somewhat recent origin, though for years the subject has been discussed. With the present reduction in the fruit demands of foreign markets the fruit industry of the Pacific Northwest has felt the drag of low prices. Several solutions have been proposed for the problems confronting the fruit men, prominent among which are manufacturing processes, the utilization of by-products, drying, canning, preserving, and so on. Some relief is in sight from these sources, but a better remedy is promised by the introduction of stock and consumable crops of alfalfa, clover, corn, and the like, to supplement the profits of fruit farming, to supply manurial fertilizer for the orchards, and, in general, to make the fruit industry more stable.

Since the organization of the stock-show association many Northwestern grain men have joined the fruit men in their undertaking in behalf of more livestock. The uplands surrounding the irrigated fruit valleys have for many years gone wholly to grain production, until, after twenty-five to forty years, the wheat growers find they must raise stock, too, if wheat is to continue as a paying crop. J. L. A.

Points to Foreign Horse Buyers

THE institution at the horse market in Chicago that particularly attracts the attention of foreign commissioners is the inspection of horses for auction. So, when the inspectors find their way into the little shed where "Spratty" calls out to the megaphone man the diverse defects of the horses about to go under the hammer, they stop and view his work with interest. It astonishes them to see how rapidly a man can look over a horse and miss nothing. Frequently they stop an inspected horse and run over it themselves to ascertain if anything has been missed. Then they discuss in their own language the seriousness of the defect as affecting the monetary value of the horse. They eagerly inform themselves also as to the meaning of the slang terms used.

One of them, after getting a full understanding of the reason for the examination, confided that in his country every effort was made to conceal and not to reveal the defects of a horse put up for public sale. They follow the old rule, *caveat emptor*.

It is difficult to explain the slang terms by which horse dealers describe unsoundnesses, varying from a "fresh car bruise" to a "worker only," which may be blind, heavey, crampy and have any number of blemishes in or out of sight. A "worker only" has only to straighten the traces and pull the wagon a few feet. The principal unsoundnesses in horses which affect their value are injuries or defects about the legs or eyes. Hidden defects must be left for discovery by the buyer. Horses that develop the chief hidden troubles may be returned by the buyer at any time they are discovered by him.

Bad hocks, splints, side bones and wire cuts form the first line of blemishes behind a dense cloud of skirmishers composed of scratches, bruises, brands, and inherited unshapeliness, all supported by the heavy artillery of disabling defects that rob a horse of substantial commercial value. As one listens to the caller, one becomes at first somewhat disheartened. The horse buyer, however, knows how to discriminate. It is the duty of the inspector to see and call everything, but shrewd dealers know what defects deduct from the selling price and how much. Some amount to half a cent and others to half a hundred dollars.

As all these blemishes and defects have been taken into consideration by the farmer and the buyer before the horse is shipped to market, and will be thrashed out again by the horse dealer and his Eastern customer, isn't it just as well or a little better to have a competent examiner announce them publicly as to leave an opening for endless disputes?

Maybe the foreign inspectors have learned something worth while here in America. G. E. W.

Feed for Dairy Cattle

IT SELDOM pays to cut hay fine for dairy cattle. Food that the cow consumes stays in the paunch a sufficient length of time to become softened and is churned about until it reaches a semi-liquid state before passing on through the stomach. For this reason, cutting the fodder before feeding is unnecessary. For horses that are working very hard it is sometimes advisable to chop the hay, but it should then be moistened to prevent danger of heaves. Poor-quality roughage may be fed when it is chopped fine and dampened with molasses, but this is doubtful economy.

Grain may be sprinkled over silage to good advantage. This keeps cows from gorging the feed and also prevents any likelihood of impaction in the stomach due to too much heavy feed being given at one time. It is not advisable to feed grain in the form of slop to dairy cattle, the added returns being practically nothing and the labor involved more than offsetting any saving. If one gives the cattle access to plenty of salt there will be no question of their drinking all the water they need. Many mix salt with the feed, but when this is done some cows may get more and others less than is desirable. A far better way is to feed it in a clean manger, so one can tell whether or not the cow cleans it up. Still better, it may be placed in a box protected from storm and left near the watering trough. The cattle soon find this and eat all that they desire.

With grains high priced it behooves every feeder to study the feed-control bulletin put out by his experiment station in order to ascertain the true value of the various feeding stuffs on the market. G. F. S.

Fat Horses and Mules

A SURPRISINGLY large number of breeders of horses and mules fail to appreciate the fact that commercial markets usually demand work animals carrying considerable fat. Purchasers of horses and mules for the East and the South are usually as discriminating against thin animals as are the buyers of meat animals who operate for packers and butchers. In seasons when feed is scarce it is not unusual to find a draft horse in thin flesh selling for as much as seventy-five dollars less than a highly fattened animal of similar breeding. After the drought of 1913 in the Middle West fat mules averaged thirty to forty dollars a head more than thin animals on the St. Louis and Kansas City markets.

"Won't the extra fat wear off quickly with hard work?" This question was put to a representative of Boston and New York horse distributors who was recently inquiring for fat horses at St. Louis.

"Yes," this buyer replied; "but the users of horses in the cities of the East want fleshy animals because they consider fat a sign of soundness. Fat is also desirable on work horses because it makes them more attractive to retail buyers. Then we want fleshy horses in the winter months because they are less susceptible to ills in long shipments in cold and stormy weather. The only time when fat is not desired on horses in the East is in the hot summer months, but very few equines are purchased then."

Inquiry among mule dealers will reveal a similar attitude on the part of handlers of the hybrids in the South, which absorbs most of these animals. The average cotton grower keeps his work stock thin, for he produces little feed, but when he buys a new mule he demands a fat, sleek animal.

In Ohio, Indiana, Pennsylvania, Iowa, Missouri, Kansas, Kentucky and Tennessee the feeding of horses or mules for markets is a growing industry. However, the commercial feeders are comparatively few in number, and all breeders and farmers having mules or horses to sell should bear in mind the value of fat before marketing.

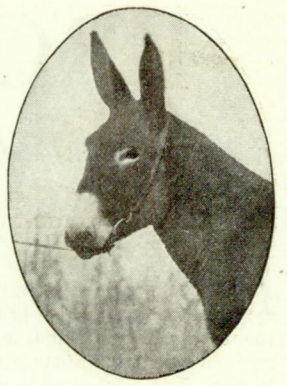
Diversified Meat Making

DIVERSIFICATION in production is the newest movement in the livestock industry. Many feeders who formerly specialized in one class of stock are now dividing their business in a manner which enables them to handle cattle, hogs and sheep at the same time. In doing this they are undoubtedly reducing the risk.

In the last year market returns on sheep netted feeders the most liberal profits. In the preceding year sheep were unprofitable, as a rule, to feeders, while hogs and cattle made the best showing. In the last year, however, hogs and cattle have been unprofitable to hundreds of feeders. These fluctuations are making for diversification.

Henry Hoenig, of Boone County, Missouri, operator of a stock farm of 360 acres and a strong advocate of diversification, makes these points in favor of the practice:

"With all meat animals comparatively high, I consider that there is a great risk in handling one class regularly. By feeding cattle, hogs and sheep, the opportunities are better for striking good markets when one is forced to sell a part of his holdings. Hogs go well with cattle, as they consume the droppings. Lambs are profitable in cleaning up cornfields and in making use of weeds. In addition to these advantages, the practice of keeping all three classes of meat animals gives the feeder assurance of profiting more frequently from spurts in market prices."



Cattle Fed by Contract

A DEPARTURE in the cattle-feeding business that may pave the way for fattening operations by farmers of small financial means has been introduced in Jasper County, Missouri, by Joseph M. Gerard. Mr. Gerard contracted last season with two farmers to finish cattle for market, allowing the feeders five to five and one-half cents for each pound of gain put on the animals.

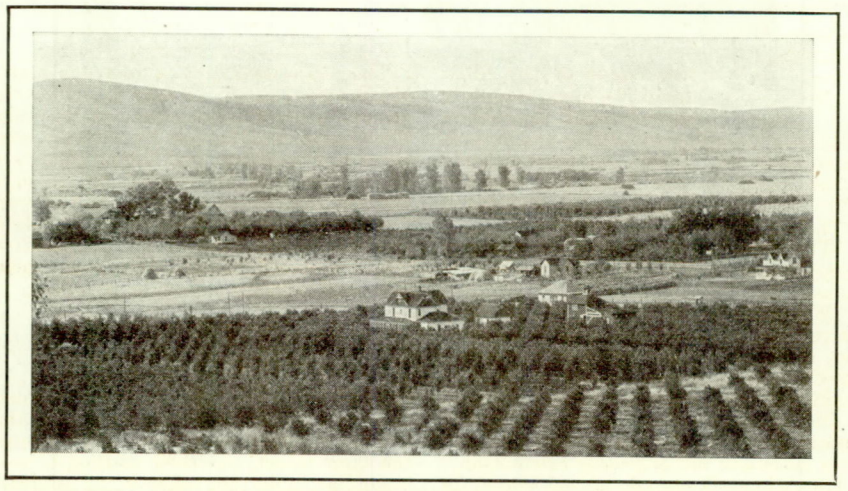
"Neither of the feeders who undertook to fatten cattle for me at these terms reported profits," said Mr. Gerard in outlining the results of his venture. "However, neither was experienced. I believe the lessons they learned will enable them to profit in the future. Corn silage and cotton-seed meal were the only feeds used. The cattle were weighed to the feeders October first of last year, and agreement was made that the animals would be delivered to me February first. The amount of feed to be given the animals was not specified. I believe I made a mistake in failing to provide that the animals should be kept on a full ration, for one of the feeders fed too sparingly. Among the returns to the feeders was the manure. I plan to pay six cents a pound for gains next season."

One of the Jasper County farmers fed twenty two-year-old and fifty-two three-year-old steers for Mr. Gerard. The other fed thirty-six yearlings. The two-year-olds averaged 648 pounds when put on feed and 1068 pounds when marketed. They cost $6.75 as stockers and sold last February at Kansas City for $7.30. The three-year-olds weighed 825 pounds when placed on feed and averaged 1103 pounds when sold on the same market at $7.30. These lots were fed at a cost of five cents a pound of gain, but, owing to the low market that prevailed in February, they failed to net Mr. Gerard a profit. The thirty-six head of yearlings weighed 648 pounds when put on feed and averaged 794 pounds when sold February first. They cost seven dollars a hundredweight as stockers and sold for $7.70. As they had been grazed the preceding summer and as they cost thirty-six dollars a head as yearlings when weighing 500 pounds, they netted Mr. Gerard a profit of ten dollars a head. Had they been fed more liberally they would have returned a still better profit. S. S.

Christmas Beef Prices

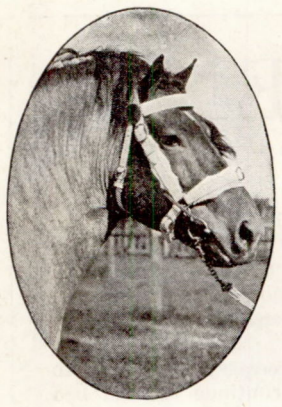
CHRISTMAS, or holiday, beeves, in the opinion of cattle trade authorities, are now in a period of reaction. Packers and butchers who formerly purchased fancy cattle say the novelty of sales of live beef animals at extraordinary prices has worn off. As a result, the advertising value of such purchases has diminished. This, together with the fact that all beef animals have been high for several years, is reducing the ranks of feeders who prepare fancy cattle for the holiday trade.

Prices of fancy holiday cattle on the Chicago and Kansas City markets the last two years have been disappointing to feeders. The top on such cattle at Chicago last year was thirteen dollars a hundredweight, but many sold below this figure. The highest price ever paid in the United States for such beef on the hoof was a dollar and a half a pound.



In the Apple Orchards of the Yakima Valley Peach Fillers are Being Replaced by Sheep Fillers—Alfalfa, Clover and Other Forage

Round the Farm



Bermuda Pasture

THIS pasture may generally be started most economically from cuttings of the underground rootstocks. With a plow shave off the sod to the depth of about two inches, and cut the sod into pieces two to three inches square. During the fall or early spring a field of Bermuda may be plowed up and the roots raked out with a spike-tooth harrow. These may then be cut into four to six inch lengths with a feed cutter.

Land into which the Bermuda is to be transplanted should be well prepared with a two-horse plow. It should receive some manure, and from 400 to 500 pounds to the acre of a suitable fertilizer mixture should be broadcast, especially if the land is poor. The roots should be dropped eight to ten inches apart in two-foot furrows. Cover the cuttings or pieces of sod by means of a harrow or single plow. The next summer the Bermuda will come up and will make good growth. It will, of course, be killed to the ground by the first good frost of fall.

As Bermuda grows only during warm weather, bur clover or hairy vetch is suited as a supplementary crop in a pasture. Both of these will grow during the fall, winter and early spring.

Propagating Huckleberries

THOUSANDS of acres, especially in Michigan, Wisconsin and Minnesota, can be more profitably used for huckleberry culture than for any other crop. Thickening the stand of the bushes on a piece of land already occupied by the plants is a practice that would be profitable on many farms.

There are, in a general way, two kinds of huckleberries—the highbush or swamp and the low or upland, which is commonly called the blueberry. The highbush or swamp huckleberry is more desirable for cultivation. It is not essential that it be planted on land that is permanently wet, although a continuous supply of moisture is necessary. At present nurserymen do not handle huckleberry stock.

A farmer may provide his own stock either by transplanting or by propagation; and propagation may be done by layering or by cuttings. Through these methods one old plant may be made to produce several hundred young plants. Making cuttings of the rootstocks is suggested as a very good method of propagation, although cuttings may also be made from the above-ground wood. Take up the rootstocks in the fall; cut them in pieces about three inches long and place them in boxes of sandy loam soil. These boxes should be kept in a cool place, but away from severe frost, until spring. They may then be planted in a thoroughly prepared seed bed and given good care until the plants have obtained a foothold. A larger percentage of plants will be obtained by planting the cuttings in a greenhouse about February first, then transplanting the young plants after they have formed a good root system.

Moss in a Reservoir

ALGÆ are aquatic plants very commonly found in ponds and reservoirs. The best method of getting rid of this mossy growth is to treat the water with copper sulphate in the proportion of one part copper sulphate to 4,000,000 parts water, or, in round numbers, one pound to 500,000 gallons.

After ascertaining the capacity of the reservoir, the necessary amount of copper sulphate crystals may be placed in a coarse sack and dragged back and forth through the reservoir until all the copper sulphate is dissolved. At this strength copper sulphate will do no harm to human beings or animals, and it will undoubtedly get rid of the algæ, though these differ in their resistance.

If copper sulphate of this strength does not do away with the pest, try one part copper sulphate in 2,000,000 parts water—one pound to 250,000 gallons. The Federal Bureau of Plant Industry publishes Bulletin No. 64, A Method of Destroying or Preventing the Growth of Algæ and Certain Pathogenic Materials in Water Supplies.

Lime Burning

THE best method of burning lime on the farm is that used in Center County, Pennsylvania, which has been described by William Frear in part as follows:

"A convenient oblong piece of ground is cleared, and leveled if need be, to secure a fit platform. Upon this is laid a layer or two of good cordwood. Between the chinks in the cordwood, shavings, straw or other light kindling is placed. The stone, having been reduced to the size of a double fist, sometimes not so small, is laid upon the cordwood, care being taken to leave chinks between the pieces, just as between the bricks in a brick kiln; it is preferred that this layer of stone should not exceed six to ten inches in thickness.

"In some cases temporary wooden flues, filled with straw, are erected, either one at the center or, if the heap is oblong, one near each end, and the stone and coal are built up round them; thus, when they are burned out, a chimney draft or two is secured, which may be damped with pieces of stone or sod.

"Upon this layer of stone is spread a layer of coal and upon that a thicker layer of stone—twelve inches—and so on, coal and stone alternating until the oblong heap is topped with smaller stone. The proportion of coal is diminished in the upper layers, the effort being to distribute half the total coal employed in the two layers so as to secure the highest economy possible in this use of the fuel.

"Fire is then kindled in the straw or shavings; when the flames have communicated themselves to the cordwood and lowest layer of coal, and tongues of flame shoot out from the crevices in the sides of the heap, earth, previously loosened by a few turns of the plow about the heap, is rapidly spread over the entire heap, thus damping the drafts and retarding combustion. Steam and smoke slowly escape during the first hours, but later the entire heap, including the outer covering of earth, is heated to a dull red glow.

"The burning goes on slowly for several days, the interior often being hot for several weeks.

"When the lower portion of the heap has reached an advanced state of calcination, a portion of the outer layer of lime sometimes slips down; and if so, a fresh covering of earth must be promptly applied at the exposed point; otherwise, it will serve as a vent for the heat, and the top and other sides will fail of proper calcination."

Approximately one ton of coal is used for each hundred bushels of lime. Soft coal may be used.

A Vegetable and Root Cellar

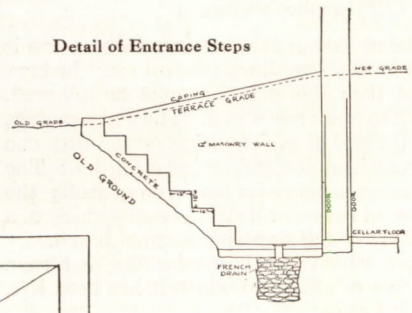
THERE are three important considerations in the construction of a cellar for storing vegetables and roots: The cellar should be reasonably dry, it should prevent freezing, and should have sufficient ventilation to prevent mustiness. Artificial heat would cause undue evaporation, so it is customary to build the cellar below the ground level, on well-drained soil. If building stone is available on the premises, or is obtainable near by, it may be used economically; otherwise consider concrete or hollow tile.

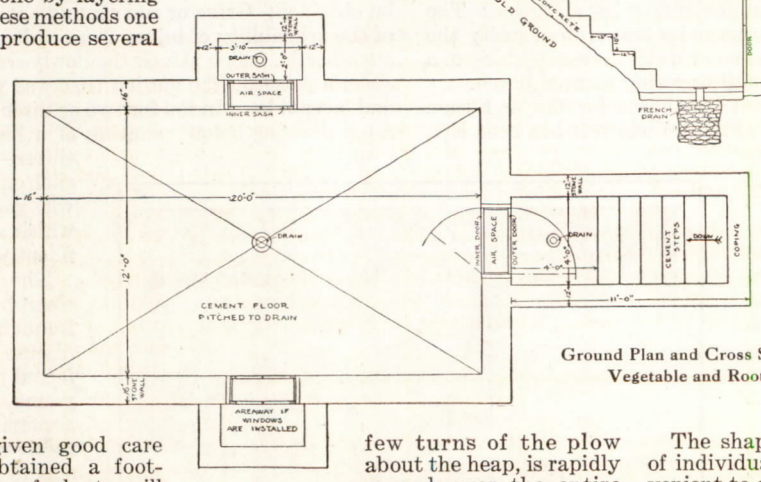
The accompanying sketch illustrates a twelve-by-twenty-foot cellar, eight feet deep, with sixteen-inch masonry walls. If concrete is substituted the walls need be only eight inches thick. The excavation may be made the full depth of the cellar, or it may be dug about six feet deep, with an embankment thrown up round the building. A site on the side of a hill will lessen the amount of excavating.

If the site is on old ground and there is a firm foundation for the masonry walls, no concrete footings are necessary; otherwise it would be advisable to build them as shown. The floor should consist of four to six inches of broken stone or cinders, well tamped and covered with a three-inch slab of concrete, mixed one part cement, three parts clean sharp sand, and five parts broken stone, pebbles, cinders or slag. The bottoms of the areaways may be finished in the same manner or left in the rough. If finished, however, they should be provided with a French drain similar to that in the entrance areaway and cellar floor, which is made by removing three or four cubic feet of soil, refilling with broken stone, and before the coat of finishing cement is applied inserting a cast-iron stable drain or grid, through which water may run off.

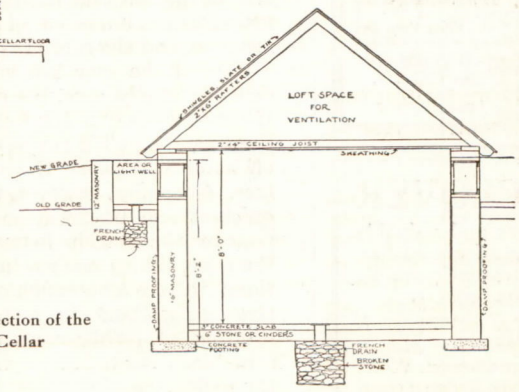
If the building site is not naturally well drained and there is likelihood of moisture penetrating the stone walls, the exterior should be damp-proofed with a half-inch coat of cement mortar—one part cement to three parts sand—mixed with water containing a waterproof solution. The inside face of the walls may be left in the rough, or porridged and troweled to a smooth surface. The floor should have a finishing coat of cement, pitched to drain. Windows are not essential except for the lighting; if installed they should have inner and outer sashes, both carefully weather-stripped.

Detail of Entrance Steps





Ground Plan and Cross Section of the Vegetable and Root Cellar



The shape and type of roof is a matter of individual taste; it may be found convenient to erect a structure over the cellar. Ventilation is obtained by cutting small vents in the ceiling, and fitting them with slides that may be opened or closed as weather conditions require. If the vegetables are stored in baskets or barrels no special interior fixtures are required; if they are stored in bulk, bins with slatted sides and bottoms should be provided.

Picking Leaf Rollers

THERE is a leaf roller that is common on grapevines and at least one species that is quite common on apples. These are not the same insect, but their method of work is similar, and they offer equal difficulty in the matter of successful treatment after they are once well started.

On grapevines it is feasible to pick off the rolled-up leaves. When one is dealing with the small home vineyard this is the best plan to follow. When many vines are infested hand picking is sometimes followed, or the vines may be sprayed with arsenate of lead, used at the rate of three pounds of the paste to fifty gallons of water. As the small worms take some of the leaf into their rolled-up home they usually get enough poison to kill them.

On apple foliage, when the trees are quite small, hand picking the curled-up leaves is the best remedy.

The Peach-Tree Borer

IN FIGHTING the peach-tree borer most growers dig out the grubs with a knife. This is a laborious process, but is capable of certain modifications that make it more effective and less of a nuisance. In the first place, the trees should be gone over in the fall as late as practicable. At that time many of the young borers have not yet entered the wood of the trees but are practically on the surface of the bark, beneath bits of gum. Cleaning the outside of the trees, close to or just below the surface of the ground, removes these borers before they have had a chance to do any damage.

The trees should also be gone over early in spring. Then, after the grubs have been removed, earth should be mounded up round the trunks of the trees to a height of five or six inches. This will not prevent the moths from laying eggs for another crop the following year, but it will make them lay their eggs higher up and will cause the borers to start their work farther up. The mound of earth should be removed at the end of summer. Then, when it comes time to go over the trees for borers, they can be got at more easily and a more effective job can be done. As a matter of fact, there will usually be much less damage to the trees when this method is used.

Pruning Dwarf Apples

THERE is no month in the year when pruning cannot be done. However the results of pruning at different times are likely to be decidedly different, and one should have a pretty clear idea of what he is trying to accomplish before he begins.

The general rule is that the effects of summer pruning are the reverse of winter pruning. If a tree is inclined to be weak and needs encouragement, it certainly should not be pruned in June or July. If it is growing strong and needs to be checked in order to induce greater fruitfulness, heading back young growth early in summer would be proper.

Dwarf apples on doucin stocks must be pruned severely every year, provided they are to be kept in distinctly dwarf form. Their tops must be systematically headed in if their stature is to be kept within bounds. This is equally true of pears, cherries and all other kinds of fruit trees that are to be grown as dwarfs. On the other hand, however, if dwarf apples are to be grown in an open orchard for commercial purposes it is better to do little or no pruning after the first year.

Apples on doucin stocks act very much like those on standard stocks. There is very little difference. With drastic pruning, however, properly directed, they may be somewhat dwarfed and will bear a trifle earlier.

It is generally assumed that dwarf pears, on account of their slower growth, are less likely to blight than standards. They should not be forced into growth at any time.

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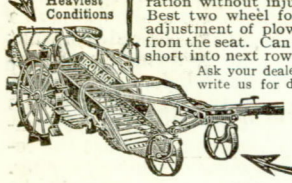

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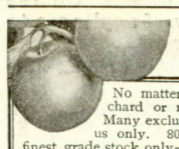

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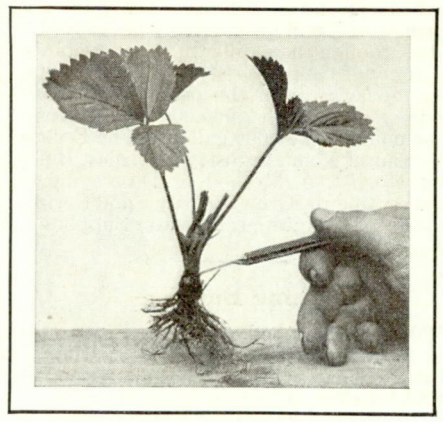
EVERYMAN'S GARDEN

Establishing and Renewing the Strawberry Patch

THE home garden should produce an abundance of strawberries. There is little danger of having too many, because if the bed should happen to get ahead of the immediate demand for the table the surplus may easily be saved for winter. Rightly managed, a very small space will give an ample supply for both purposes. Extra-fine quality should be the aim in the home berry patch, and fortunately, with this crop, the best quality and the biggest yield go together.



Long Roots Should be Trimmed Back a Third or More, and Leaves Removed in Proportion. The Knife Blade Shows the Proper Depth to Set the Plant

Berries can be grown in almost any soil, but there is considerable difference in adaptation of varieties to different kinds of soil. In making a new bed it is well to select varieties that you know will thrive in soil similar to that which you have. When plenty of water is available, however, not so much attention need be paid to this. Though the berries revel in an abundance of sunshine, and bear early on a southern slope, the patch should not be located in too sheltered and early a spot, or there will be more likelihood of loss through late frost. Again, irrigation alters the case, for it may be used for frost protection, and proper handling of the winter mulch is also a safeguard.

Strawberries are one of the few things that do well on a rather acid soil, so avoid ground that has been recently limed. On the other hand, the ground can hardly be made too rich. Manure or fertilizer or both should be used freely. Only old, well-rotted manure should be selected, and if this can be applied to a crop preceding the berries so much the better. Of fertilizer, the basic formula, 4–8–10, is the best. It should be thoroughly worked into the soil before planting, however, either broadcast or along the row. Fertilizer used directly under the plants at the time of setting is very likely to cause injury.

The system of growing most generally used is the matted or solid row. The hill system has its advocates and its advantages, but the suggestions herewith, unless the hill system is mentioned, apply to the matted row. With this system a new bed is generally made every second year, or a smaller one, for the same total amount of space, every year, so there will be first and second crop berries each season.

Cut Off Surplus Runners

Often the bed that has grown two or even three crops is renewed in the same place. Sometimes the bed must be kept in the same spot, and then this practice must be followed. Generally it is less work to make a new bed. The berry grower, then, finds himself at the end of each fruiting season with one or all of several different jobs demanding his attention: The care of the bed that has just borne its first crop of fruit; the maintenance, if desired, of the older bed; the establishing of a new one, and the care of the fall or spring planted patch.

Care of the new bed which has borne for the first time depends largely upon the condition in which it has been left. If there are only a few weeds these can be pulled out or cut off at or just below the surface. Generally, however, the quickest and best way is to remove the mulch between the rows, taking one row at a time; to give a thorough cultivation, working in a top-dressing of fertilizer at the same time, and then to replace the mulch.

Another advantage of thus removing the mulch is that then the rows can the better be trimmed up to their bounds; they should not be over fifteen to eighteen inches wide. Runners, or plants that have rooted beyond these limits, should be cut off; the tendency of almost all plants of all varieties is to form too many new plants. If you want good fruit the second season this must be guarded against by cutting out a good many of the runners and plants, even in the row. The plants should be five or six inches apart in all directions for the best results; closer than this, they crowd each other for light and air and there is not enough plant food to go round, resulting in a crop of undersized, unsatisfactory berries.

When it is necessary or desirable to remake or to continue the old bed that has rooted two seasons or more, drastic measures must be used. As soon as the last berries are picked, cut the rows over close with a scythe or a sickle, and rake with an iron rake; do not be afraid of giving rough treatment, as it makes little difference how many plants are pulled out. Burn the rakings to destroy any eggs or disease spores.

Then go over each row, cutting out the oldest plants and most of the new ones. Leave new, strong crowns eight to twelve inches apart. A handy tool for this job is the small combination hoe and prong hoe, which has teeth on one side and a narrow blade on the other. The blade should be well sharpened, so it can be used to cut off runners and to cut out plants, while the teeth come in handy for raking them out after they are cut.

The result may be a pretty sick-looking, skimpy bed, but do not worry about that. Give a good top-dressing of a complete fertilizer. This may be broadcast over the plants if you give it a thorough watering afterward to wash it off the leaves and down into the soil. A light top-dressing of nitrate of soda should be given in addition to the fertilizer.

Where to Start the New Bed

Another method of renewing an old bed is to cultivate the passages between the rows; rake them over carefully and then root runners from either side. After these are established cut them off, and pull out the old rows.

The making of a new bed of garden size is not a difficult task. The plants, being set out in late July or August, usually follow some earlier crop. For best results the ground should be as thoroughly prepared as for spring planting. If a horse is available thorough cultivation with narrow teeth will be the best way of getting the ground into shape; or the soil may be turned over with the hand-plow attachment of the wheel hoe, or forked up. In any case, get it fine and loose and mellow. Do not attempt to plant by simply digging out holes in which the plants may be set in hard-packed soil. The strawberry crop depends almost entirely upon the development of the large, fleshy roots made the previous season. Only by having the soil in the best mechanical condition can the best results be obtained. Grass or sod ground should be avoided because of the probability of injury from white grubs, the larvæ of the June beetle, which attack the newly set plants. Select, if possible, a patch in the garden that was well manured in spring and has not been in sod for two or three years. Such a soil with a top-dressing before planting of a high-grade complete fertilizer—five pounds or so to each one hundred square feet—will make a beginning from which an early crop may confidently be expected.

To Get the Best Plants for a New Bed Use Pots. Until Rooted the Runner is Held in Place by a Small Stone or a Clothespin

The plants should have a clean bill of health; the most frequent cause of injury from disease is planting from infected plants. They should be young, vigorous and as fresh as possible. The roots of plants received by mail or express should be still in a fairly moist condition. If they are very dry immerse them in water up to but not over the crowns. If the stems have not been sufficiently trimmed at the nursery this should be done before they are soaked. The best plan is to puddle them in a thin clay-soil mud, which will adhere evenly to the roots; removed from the puddle and planted promptly, the soil will be brought into intimate contact with the roots, favoring a quick new start. The leaves, if large, should be trimmed

back and any that show the slightest trace of blight or leaf spots should be removed; it is better if all such plants are immediately discarded.

To root your own supply of plants, select only good healthy vines, and work the ground into good condition, just as the runners start, so they will have a congenial place in which to establish themselves. The first or tip plants from the runners and the first one or two runners thrown out by the plant are usually the strongest and are ready the earliest.

To get ideal plants—those which with proper care will give a full crop of the largest berries the first spring after planting—buy or root for yourself potted plants. These cost more and are a little more trouble to get or to produce, but they are worth the difference. Good potted plants of the standard varieties cost about three cents apiece. To produce them from the old bed all that is required is a supply of small pots. The soil is made mellow, as for ordinary layer plants, the pots are filled with earth and sunk to the rims, and the runners are held in place over them with small stones, small twigs or clothes pins, so that they will not be blown out of position.

In planting for the matted row, the rows are marked off two or three feet apart and the plants are set from twelve to eighteen inches apart in the rows. When new runners start these are rooted between and to the sides of the original plants until a solid mat some fifteen to eighteen inches wide is established. The plants in the mat should not be closer than five or six inches.

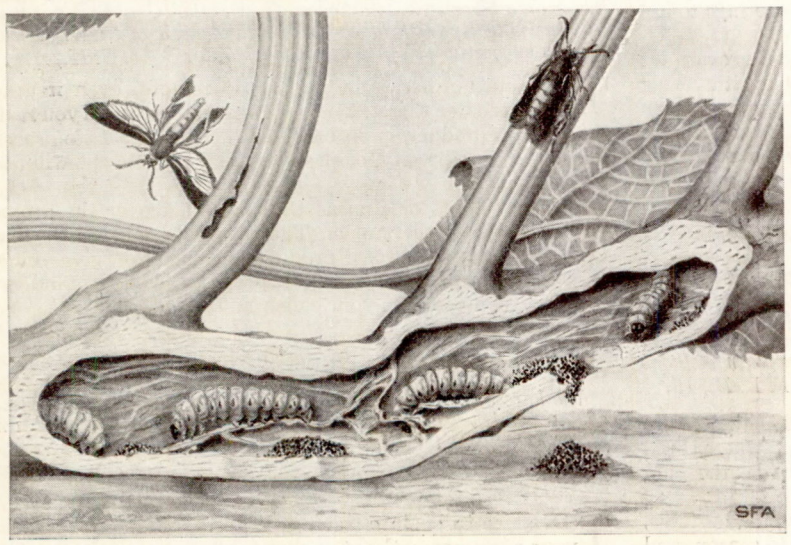
For the hill system of cultivation the plants should be set twelve to fifteen inches apart each way in beds of two to four rows, with eighteen or twenty-four inch paths between the beds. To achieve success with hill culture it is necessary that all runners be cut off as soon as they appear in the fall after planting. For this reason the plants should be set out as soon as possible, preferably in July, and surely not later than mid-August. In rich soil with plenty of moisture and good cultivation the plant will have a solid bushy crown nearly a foot across ready to produce a splendid crop of fruit the following June.

In setting the plants three things should be kept in mind: Set on a freshly prepared surface; get the plants in firmly; cover them well up to but not over the crowns. If irrigation is available get the soil fairly moist before planting, then give a thorough watering after the plants are in.

In setting out new plants do not fail to include a few of the fall-fruiting or ever-bearing varieties, which have now been developed to a point where the fruit is of really fine quality and of good size. Progressive and Superb are the two best varieties of this type yet introduced. They are quite distinct and it would be well to plant a few of each. Plants set out now will fruit next June, but for a big fall supply the blossoms should be picked off the first part of the summer.

The mulch should not be applied until after the ground freezes, but it is well to make provision for it early in the fall. Clean marsh hay may be obtained in many localities, and there is nothing better. It is free from weed seeds and does not blow about so much as straw, nor pack down like leaves or strawy manure. In northern sections three to five inches of mulch is advisable. Even where it is not necessary for winter and spring protection of the plants, the mulch is of use the following season in keeping the berries clean and conserving the soil moisture.

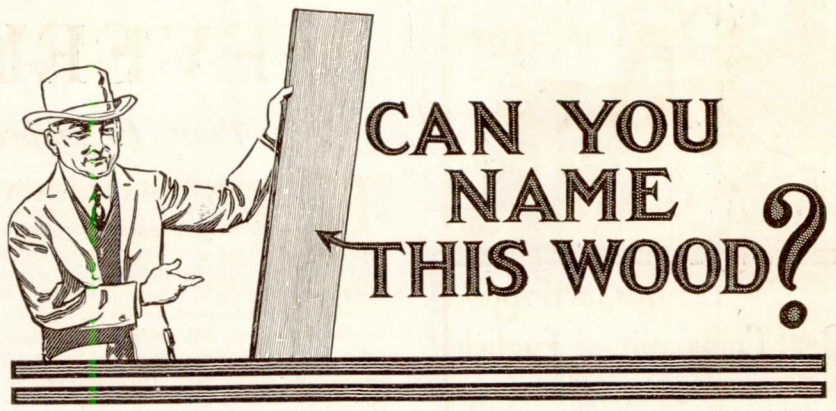
THE SQUASH BORER



THE squash borer is the caterpillar of an odd-appearing, wasplike, partly clear-winged moth of medium size, easily recognized by greenish-olive thorax and forewings, orange abdomen and legs, and long, heavy hind legs having large tufts of black hair, larger in the male. The eggs are often laid at the surface of the ground or beneath it upon the main stems of young squash or pumpkin vines, sometimes on leaves and leaf stalks, and occasionally on melon, gourd and cucumber plants. The larvæ at once bore into the vines and feed upon the sap and fibers.

When full grown the caterpillar leaves the stalk, enters the ground, spins a cocoon of silk to which particles of earth adhere outwardly, and there rests until the moth is ready to emerge, which in the Northern States may be the next spring. In the South there are two generations.

The best means of combatting this species is to plant a trap crop of a few early squashes which may be thoroughly destroyed. The borers may be cut out of the vines without injury to the plant. A yellow excrement protruding and dropping from holes in the stalk will indicate the presence of the borers. Early cultivation of infested ground is desirable.



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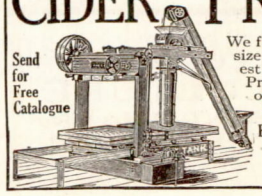

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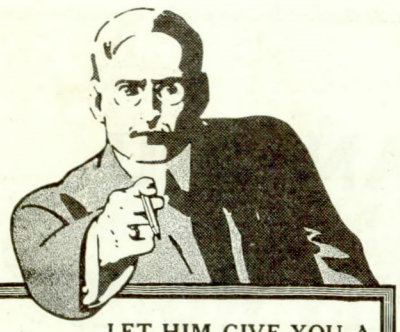

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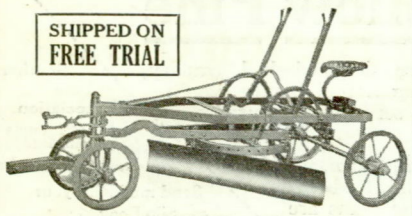

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Plans for Improving Marketing Methods to Win Greater Profits

By-Laws for an Association

Last winter we shipped four cars of head lettuce to Eastern markets and got good prices, and farmers put in a big acreage for shipment this summer. The bottom has fallen out of hay and grain raising here, and growers have been robbed on cantaloupes under the system whereby commission men advance money and control the crop. We aim to raise a moderate acreage of lettuce per grower, finance the crop, and sell through our association, under our own label. Do you think we ought to have definite by-laws for the association, or will it be all right for us simply to make an agreement among the growers? *W. O. F., Ariz.*

FOR rules, regulations and by-laws governing some of the successful growers' associations throughout the United States send twenty-five cents to the Superintendent of Documents, Washington, District of Columbia, and get a copy of Report No. 98, Secretary's Office, Department of Agriculture, entitled Systems of Marketing Farm Products, which gives much information. Your association should have standards and penalties that will uphold the quality and uniformity of the products shipped, for your whole strength in the market and the growing value of your label from year to year depend on the reliability of your pack. The produce trade wants reliable goods, and the strong association behind a brand year after year creates confidence.

Lettuce and Radishes Packed in Corrugated Fiber Boxes for Parcel-Post Shipment

To hold growers in line you should agree upon standards, provide strict inspection for shipments, and have each member definitely contract to abide by such standards and inspection, signing the by-laws. With a simple agreement there is usually nothing to hold anybody—a condition that may lead to complicated disagreements.

Another important point is so to organize that members control their association through voting power. Let each grower, whether large or small, have his vote. Prohibit proxy voting of stock, so that members must attend meetings to use their power.

If a share of stock passes to one who is not a grower, let its voting power cease. Stock that is transferable with voting power is often sold, and control passes to outsiders who rob growers. If the large grower has more voting power than the small one, control is often unbalanced. One vote to each member actually shipping produce is a safe rule.

Chances in Egg-Gathering Business

I wish to start an egg-gathering and candling business in a country town of 500 people. I have no experience, but am certain that I could clear forty dollars a week on a profit of two to three cents a dozen, and pay farmers higher prices for eggs. Do you think my plan is a good one? Will you kindly explain methods of candling eggs? *F. L. B., Ill.*

THE best way to get started in a business of this kind would be to get a job with some egg house in Chicago where country eggs are received and sorted. That would be the only practical training, and would give you an insight into the way eggs are gathered, the capital required to run such a business, the fluctuations in eggs and prices from season to season, and so on. Egg gathering is a thoroughly complicated business, full of surprises and risks for men who have spent most of their lives at it, and the chance for an inexperienced beginner in this line would be rather slim.

The Best Selling Plan

Will you suggest a selling plan for my forty-acre poultry farm six miles from railroad town of 2000, eighty-five miles from Chicago? I shall have Minorcas for eggs, Rocks and Brahmas for broilers and capons, and turkeys, ducks and geese. I have a list of 800 Chicago families who would use small shipments. Shall I build up a consumer trade, with all its drawbacks, or sell through commission houses, or to grocers or hotels? *C. G. L., Ill.*

FIRST set a high standard of quality and live up to it. Then label your products and begin building reputation for your label; it will come quickly if the stuff is trustworthy. Your selling plan should depend a good deal on where you are. If you visit Chicago and are able to get about among the produce merchants and hotel stewards, call on some of them, talk matters over, and decide which method of marketing suits you best.

Handling your products through the produce trade will give you less trouble than selling by any other method, and if your quality is high and you stick steadily to one enterprising house, instead of shifting about from house to house and shipping to different cities, you ought to get satisfactory prices and will then have a market that automatically adjusts itself to your supply. In selling to the hotel stewards you would probably get somewhat higher prices, but you would be called upon to fill orders for certain products in certain seasons—now fresh eggs, again early spring broilers, and so on. Some growers find it worth while to take this trouble, and make an extra profit at it, while others do not.

If you can form connections with one or more high-class retail grocers or butchers, selling all products under your own label and advertising your label to the retailers' customers, it would be a good arrangement and would give you a very strong hold on the market as your reputation grew.

Probably the best place for you to establish such connections would be in the Chicago suburbs. Selling direct from farm to family gives the most satisfaction when the grower's output is small, and he gets good prices by supplying a few families regularly.

The best plan for you is the one that you like most, and the one to which you can give your personal attention. You will probably discover it by a little investigation and experiment with different methods.

Apple Butter From Culls

We have a large apple orchard, and contemplate making apple butter on a large scale to dispose of our culls. Could we put it up in cans with Spanish labels for South American trade? Please give us suggestions how to begin marketing. *H. C. H., Ark.*

THE South American trade is too remote, even if apple butter is eaten there. Your best market, provided you make a first-class product, is probably with some wholesale grocery house in a near-by city, or through retail grocers who will take your output.

Visit St. Louis or Kansas City and talk over the project with wholesale grocery men. They can tell you what the market wants in the way of a product and package, give you an idea of prices upon which to figure profits, and perhaps indicate other ways of using up your culls.

Cottage Cheese Competition

We have sixty cows and turn out 250 pounds of cottage cheese a day, which we sell to hotels, restaurants, department and grocery stores in the city. Competition from creameries is keen and advertising so far has done more harm than good. How can we increase our sales? *H. A. W., Ore.*

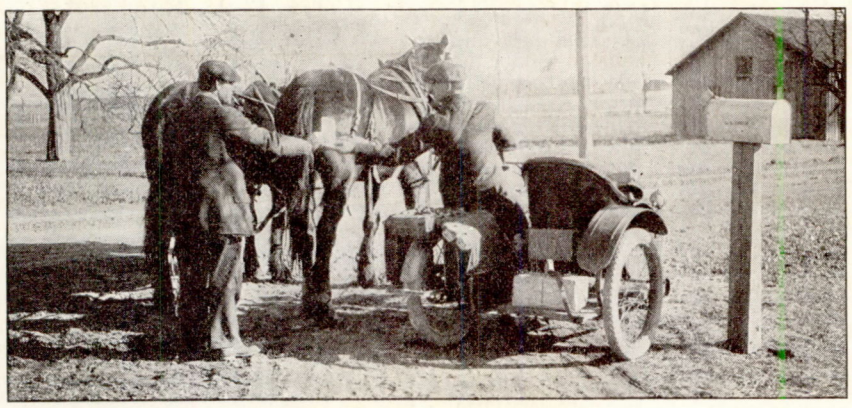
THE place to begin clinching your trade seems to be with your customers—the stores that sell it to consumers. The way to meet competition is to tell the consumers who eat your product something about the quality that you are putting into it.

Start with your package and print a statement about the cleanliness of the cheese, your care in making it, the pains you take to get it fresh to the consumer, the food value, and so on. Ask your merchant customers if they will display placards or photographs, and if they will, get up either a handsome printed story about the cheese or have a good, humanly interesting picture taken of your plant, or the farm, or a herd of cows, or anything connected with the product that will attract people, attach a short advertising story to this photograph and distribute it for display. Emphasize your brand or trade-mark and the care that is exercised in making and distributing the product.

That will make regular customers, and upon some such work you can base a newspaper advertising campaign some time later. Don't be afraid of the other fellows' getting a little benefit from your publicity.

THE R. F. D. LETTER BOX

Experts' Answers to Readers' Questions



Signed inquiries accompanied by stamped envelope will be answered promptly by mail. Address R. F. D. Letter Box, The Country Gentleman, Philadelphia, Pennsylvania.

Grading Potatoes

I would like to know what size a No. 1 potato is, also a No. 2. Also how the screen for grading is made. What kind of sacks are used?
W. V. F. G., Ky.

A NO. 1 potato is two inches or more in diameter. A No. 2 potato is less than two inches in diameter. The usual grading screen used by potato houses is made of wood slats, about an inch square, laid across one another so that the holes are two inches square. The screen is about eight feet long and two feet wide. When the potatoes are run over this screen the No. 2's drop through the screen and the No. 1's go to the bottom of the screen. Such a screen may be easily made, and iron bars, round or square, may be used instead of wooden slats, if you prefer.

Burlap sacks are used in shipping potatoes. If you do business with a commission merchant ask him if he can get potato sacks for you, as he probably can get them at an inside price. If potatoes are shipped to New York each sack must contain 165 pounds. R. E. M.

Repairing a Concrete Reservoir

Will you tell me how to mend a very fine crack in a concrete water reservoir?
A. L., N. Y.

CRACKS in a concrete reservoir usually develop from one of two causes—settlement, or contraction and expansion. They may be repaired at little trouble and expense. There is no way to prevent contraction and expansion, so a crack must be stopped with some material that is equally adhesive, nonporous, and elastic. If the crack is large and well defined, clean it out thoroughly to the full depth and about a quarter of an inch wide, being careful to remove any grease and all particles of dirt. When dry fill the crack solid with an asphalt-mastic cement, or a tinsmith's bituminous cement, either of which is very elastic and impervious to moisture.

When a large surface of concrete is covered with fine, hairlike cracks—what is technically known as "crazed"—it is impracticable to fill the cracks with sufficient asphalt mastic to give it a permanent body. Such a surface should be carefully coated with a waterproof bonding compound similar to that used in painting unexposed surfaces of limestone or artificial stone in building construction, to prevent mortar stains. This treatment is not absolutely durable, and should be repeated once a year.

If the concrete surface is badly deteriorated, it would be advisable to apply a waterproof membrane of felt and pitch, as used for the foundation of a slag roof. Thoroughly mop the surface of the concrete with pitch, embed a sheet of heavy felt paper, mop this paper with pitch, apply another layer of paper, and so on until four or five thicknesses of felt have been used; then cover the exposed surface with pitch. This method, when properly done, is positively waterproof, and will not suffer from contraction and expansion. H. A. R.

Farm Buildings and Grounds

I should like a plan showing arrangement of farm buildings, with convenient grouping of barns and milk, ice and tool houses. I should like also the garden and fruit plots indicated. *J. D. M.*

THE drawing suggests one good arrangement, although some farmers might find the house too far from the barns. The chief advantage is the close grouping of the farm buildings to save time and steps in doing chores. The blacksmith shop and the equipment sheds are under the same roof, so tools can be handily repaired. Shop and tools are on the same level with and near the horses, so the horses may be taken directly to the wagons or machinery and from there to the main road or to the fields without retracing any steps.

As I understand the contour, there is a gentle slope toward the north and east, with a rather steep bank where the basement barn is to be built. The plan places the horses, tools, and wagons on the upper level, the cows in the basement, and the milk, ice, hog, and hen houses just below the bank on the lower level. It is extremely important to have the milk house near the cows, and, if the milk is to be separated on the farm, the milk house should be large enough for a separator, gasoline engine, and butter-making tools. Some provision must also be made to provide pure water for the milk house.

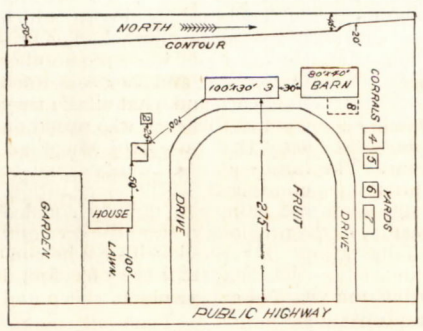
If ice is to be used for the milk, the ice house must be near the milk house. Skim milk will probably be fed to calves, hogs and hens, and the plan shows a handy arrangement of the houses for this purpose. Corrals for horses, cows, hogs and hens may be provided north of the buildings.

If yards can be easily provided a better place for the hogs and hens is directly across the drive south of the milk and ice houses. Probably the best place for the granary is on the second floor of the barn, over the cows, but there should be small grain bins in the henhouses and hog houses.

It is a question whether the advantage of a basement barn offsets the trouble of going up and down the bank every chore time, but this climbing may be partly overcome by considerable grading east and west of the barn.

I think that your idea is to have the cows in the basement stable face east or west, and I have drawn the plan that way, but I am of the opinion that they should face north or south or both ways, with plenty of stalls for the calves and with a driveway between. It is of the greatest importance to be able to drive through the stables and remove the manure.

The garden may be placed as suggested by the drawing or it may be located north of the house, across the drive. It will add to the beauty of the place to set the space surrounded by the drive to fruit. The plan makes allowance for a good-sized lawn. Trees, shrubs and flowers add to the attractiveness of the lawn if planted on the borders, but the lawn itself should be free from decoration. E. R. E.



Key to Buildings: 1. Bunk House; 2. Well and Power House; 3. Equipment Shed With Blacksmith Shop in One End; 4. Milk House; 5. Ice House; 6. Hog House; 7. Henhouse; 8. Cow Stable Basement Under Main Barn

Fattening Beef

Is any one of the following combinations sufficient for fattening beef? First, corn, soybean hay and fodder; second, corn, cowpea hay and fodder; third, corn, mixture of soybean and cowpea hay. Is the following a good rotation? Corn, first year; soy beans or cowpeas, second year; corn, third year, and so on. *B. P., Ohio.*

THE three combinations suggested are all desirable and will supply sufficient food nutrients to fatten cattle. Results of experiments with soybean or cowpea hay show that the feeding value of the two is nearly equal, varying a little with the condition of the hay.

A ration of twelve to fifteen pounds of corn and twelve to fourteen pounds of soy-bean or cowpea hay as a daily allowance for a 1000-pound steer will give satisfactory results. If a mixture of the two roughages is fed about the same allowance should be made. If the corn is fed as ear or shelled corn a sufficient number of hogs should follow the cattle to consume all waste or undigested corn passing through the cattle.

The rotation of corn and soy beans or cowpeas may be successfully carried out, but is not looked upon as the most desirable. It is too short a rotation and does not allow for a grass crop to provide a sod to be plowed under. A four-year rotation of grain, grass, corn and soy beans or cowpeas would be best suited to most farms. If there is some reason for the short rotation there is no objection. W. H. T.

Long Wing Feathers

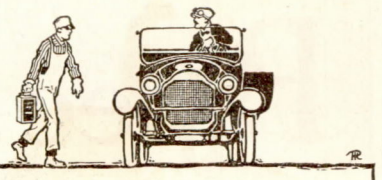
Last year a few of my chicks developed long wing feathers and died. This year I notice the same condition exists, though not to such an extent as last season. Please advise me how to eliminate this trouble. *H. C. M., Me.*

THE apparent abnormal development of the wing feathers in some of your chicks is in no sense of the word a serious matter. Every poultry keeper who raises many chicks experiences the same trouble. When most of the chicks look thrifty and develop properly the condition is generally due to lack of vigor and vitality on the part of affected individuals. In practically every good-sized flock there is present, from hatching time on, a small percentage of chicks that seem to derive no beneficial effects from good care and feeding. These are the ones that develop long heads, heavily drooping wings, and so on. There is no practical treatment. C. L. O.

Soil Improvement

Please advise a preparation for my lawn and garden soil in Southern Florida. The soil is a yellow, sandy loam, and I do not want to use the garden site for a year. What can I plant that will enrich and build up the soil?
L. M. B., D. C.

THE planting of such leguminous crops as velvet beans, beggarweed, or cowpeas on the light, sandy soils of Florida is one of the best ways to improve them for later crops. These may be planted from April to the latter part of June. My preference would be velvet beans, which may be planted in rows four feet apart, one bean every eighteen inches in the row, about one peck being necessary for an acre. The beans will grow better if they are given 200 pounds of commercial fertilizer to the acre, but this is not necessary if the soil is reasonably fertile. They should be cultivated until they begin to run, after which they may be allowed to grow at will. Late in the fall a disk harrow should be run over them, chopping them up and pressing them into the ground. Soon after this the vines should be turned under as completely as possible. They will add a great deal of nitrogen to the soil, and by the decay of the stems and leaves will also add humus. Cowpeas or beggarweed may be treated much in the same way. W. L. F.



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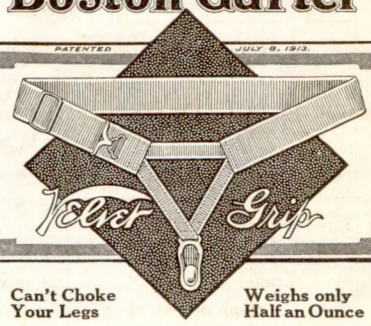

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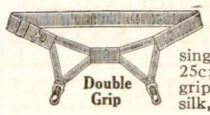

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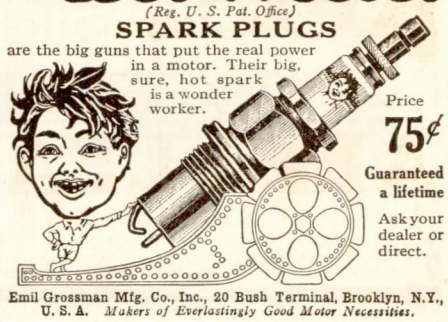

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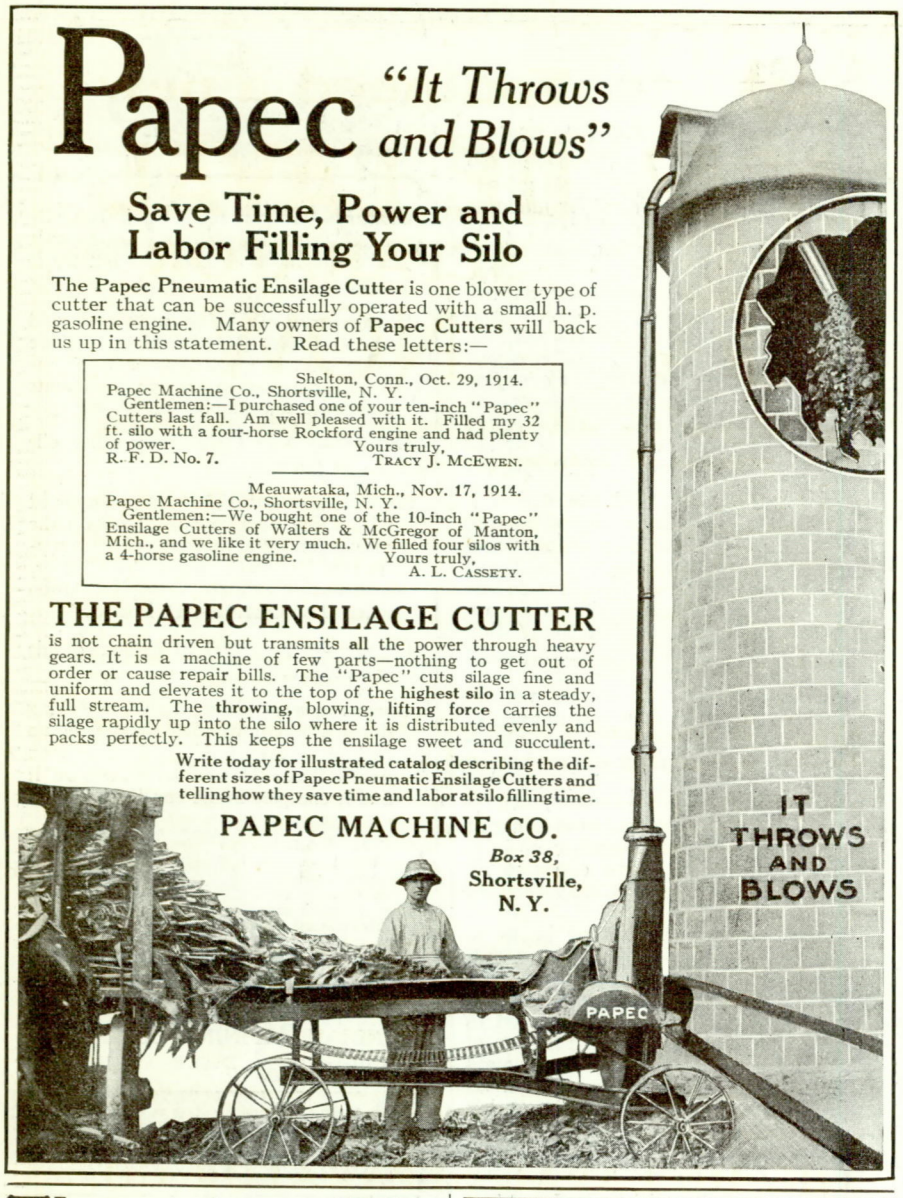

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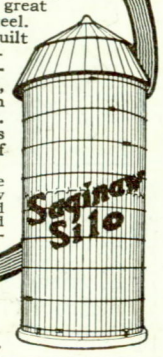

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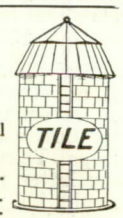

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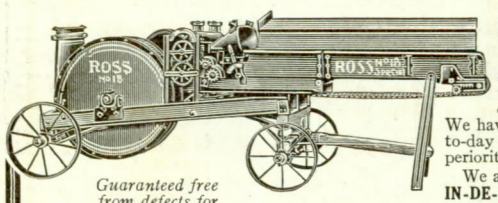

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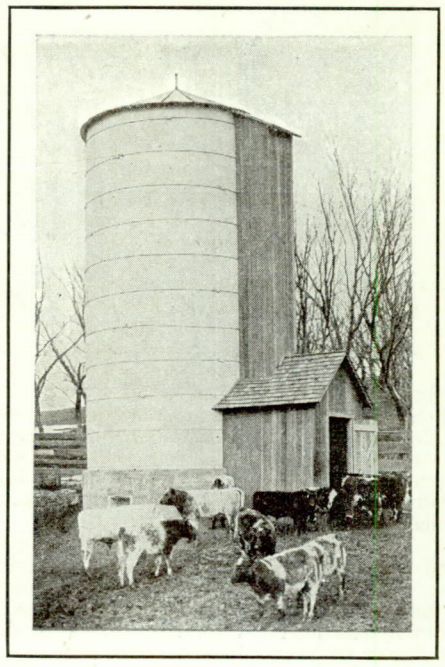
Friends of the Silo

Beef and Mutton Producers are Learning its Great Value

By J. A. Rickart



New Silos are Going Up at a Rapid Rate

AFTER several years of use in beef and mutton making the silo has become as firmly fixed in the affections of a great many Corn Belt meat producers as it has been for a longer period among those who follow dairying. Livestock farmers are coming to regard the silo in much the same way they do barns or corncribs—that is, as a necessary farm facility.

New advantages and more ways of using the silo are being brought to light with each year of its use. Last spring there was unusual complaint in all the Central States about muddy lots and bottomless country roads. Fields were so soft that it was next to impossible to haul out corn fodder, or to transport feed of any kind even a short distance. Then the man who had a silo found himself at a surprising advantage over neighbors who were not so fortunate, for he was able to avoid hauling feed. His silo was close to his feed lot, as a rule, and he saved his work horses and his temper. In some parts of the country farmers are building silos inside their barns, instead of some distance away, making it possible to handle the silage under cover.

Reports from every part of the country are invariably to the effect that new silos are going up at a rapid rate. Official figures giving the number of silos in use are available from only a few states. The State Board of Agriculture of Kansas completed a census of the silos of Kansas last summer, and gave the count up to March 1, 1914, as 7137—an average of one for every twenty-four farms. In March, 1909, there were only sixty silos in Kansas.

Other corn-growing states doubtless show a similar increase. Information from a reliable source places the number of silos built in North Dakota in 1914 at 4000, while Northern and Western Texas and Western Oklahoma have become so dotted with them that stockmen from those parts say they lead the world in number of silos in a given space. However, silo dealers say the bad cattle market this year has hurt the silo business, and that not so many of the feed preservers will be built this year as were put up in 1914.

Cheap Feed for Lambs

One seldom hears an objection to the silo. Extravagant claims of its ability to cheapen feeding costs come from every quarter. Experienced feeders put the stamp of reliability upon most favorable reports.

A. L. Stockwell, of Pawnee County, Kansas, filled two 150-ton silos last summer from twenty acres of kafir. He fed 4700 lambs during the winter, using this silage, alfalfa hay, $1000 worth of cottonseed meal, and 3800 bushels of corn, which cost him sixty-five cents a bushel. The previous winter he fed about the same number of lambs without silage, and they consumed 11,750 bushels of corn and what alfalfa they would eat. Part of this corn was raised on the twenty acres that raised the silage last year. The lambs gained twenty-three to thirty-one pounds each on the silage ration, fully a normal gain, and quality equaled quality of the previous year on the corn and alfalfa ration. Mr. Stockwell says he considers silage the cheapest feed he has found in his ten years of experience in sheep and lamb feeding.

J. A. Muckleroy, of Kaufman County, Texas, who ranches in Denton County, finished some cattle last winter on silage and cottonseed meal, and in April sold them for close to the top price for cattle from below the quarantine line. Mr. Muckleroy told me that while he, like a good many other cattle feeders last winter, paid too much for his cattle as feeders and got too low a price for them as fat cattle to make much profit, yet he figured that if the food value of silage is $3.50 to $4.50 a ton, as is commonly estimated, it can be very profitably raised and put into silos. "Put into the silos, my silage cost me two dollars a ton last winter," he said. "It certainly is a cheap feed."

Silos are made in many forms, from concrete to the pit, and all are useful under certain conditions. The pit silo is best adapted to high altitudes and dry climate. Whatever the material used, the builder should remember the necessity for making the silo air-tight, able to withstand frost, heat or wind, and strong enough to keep from cracking, either from internal heat or from settling. No metal should touch the silage, because of resulting rust.

The silo may be of any size within reason, provided it is of sufficient height to insure great pressure from the weight of the silage, which makes it more nearly air-tight. A general rule in building silos is that the height must be twice the diameter, but some men who have had experience with large silos depart from this rule with success.

John A. Edwards owns three of the largest silos in Kansas—two in Greenwood County and one in Clark County. Mr. Edwards recently furnished me the following information regarding his three big silos:

Kafir and Cane Preferred

"My silo in Clark County is not yet completed, but when finished it will be thirty-two feet across, twelve feet in the ground and forty feet above ground, making a total of fifty-two feet in height, with a capacity of approximately 1000 tons. I have two silos of practically the same capacity in Greenwood County. All three are built of two-by-four pieces and lined with roofing paper. They are hexagonal in shape.

"I have used the two-by-four material because I had a great many acres of big elm timber, which was worthless for any other construction. Before erecting the silos I soaked the elm pieces in black oil. They give every appearance of being as durable in this capacity as any other timber. I am of the opinion that this kind of silo does not preserve the silage any better, if as well, as some other constructions. The chief recommendation is that any mechanic or farmer can build it, and can do so easily and quickly and without scaffolding.

"I fill my silos as I build them, letting the workmen stand inside on the silage, so that when they finish building it, it is filled. Tramping the silage when filling adds materially to its keeping and feeding qualities.

"I use chiefly kafir and cane for silage, and prefer them to corn. As a rule corn silage is much more expensive and is no more efficient. It has been my experience that the silage from any of these crops is better if the crop has been allowed to ripen than if it is husked in the field. Immature or half-ripe grain has not the feeding value of ripened grain."

As to the best material to use in filling the silo, officials of the Missouri Department of Agriculture recently advised an inquirer that as a rule the best filler is the variety of corn that makes the best crop on the farm where the silo is situated. Experiment stations have determined, after three years of tests, that there is practically no

difference in the feeding value, ton for ton, of sorghum, kafir and Indian corn silage, although sorghum usually produces more tons of silage to the acre than either of the others. However, in a climate where rainfall is deficient kafir produces more silage than either sorghum or corn, and on bottom farms corn makes the most tons.

There are shades of advantage to be gained by experience. J. M. Black, a ranchman in the Texas Panhandle who has two silos of total capacity of 500 tons, told me that he filled his silos last year with feterita, because he had more of that feed than any other.

"Feterita and milo usually have more grain on them," he said, "than kafir or sorghum, but the stalks are not so good, being more pithy and dry. I have had only three years of experience with silos, but think Indian corn and kafir make the best silage. Sorghum, mixed with them, adds a sweetness that makes cattle drink, which hastens the fattening process. For fattening we add cottonseed cake or meal, also ripened corn, milo, kafir or feterita heads, and such dry feeds as fodder or wheat straw."

Some men, who have had little experience in filling silos, use the poorest part of their corn to fill their silos. Doubtless the low-yielding corner of a cornfield will furnish more feed by way of the silo than otherwise, but it should not be expected to give so much feed as the rich portion of the field if there is any great difference in the yield. The silo cannot make rich feed out of low-grade material.

It is conceded that silage does not in itself possess feed qualities that will fatten cattle or sheep to a high degree of finish. But cattle that have been fed silage with sufficient fattening feeds to finish them suffer no discrimination from packer buyers at the stockyards. Buyers can detect silage-fed cattle that have not had enough cottonseed meal or other fat-producing concentrate. The hair is usually rough, and the cattle have a dirty, disheveled appearance, due to sticky saliva getting on the hair and accumulating dirt.

Also, silage by itself makes an animal paunchy, and it takes considerable fattening feed, cottonseed meal, corn, molasses, or something similar, to "feed the belly off" a strictly silage-fed steer. Buyers of cattle for slaughter do not like cattle with big paunches, as such cattle turn out low dressing percentages.

When cottonseed meal is fed in troughs with silage cattle sometimes nose round the mixture to get at the meal, and waste much of the silage by throwing it out of the troughs, especially if it is low grade or too dry. Strips nailed along the sides of the trough, extending over the top an inch or two, will prevent this waste in a degree, but some feeders pour molasses over the silage, and say that the molasses causes the cattle to clean up the silage without waste.

An Oklahoma feeder claims that his cattle will eat as much as five pounds of molasses each a day, fed in this way, with as much gain in weight resulting as if fed five pounds of corn. With a smaller feed of molasses he gets a gain equal to that from one and a half times as much corn.

Missouri, Iowa, Illinois and Kentucky grazers—that is, stockmen located in states where the silo has been used longest in beef production—sometimes object to buying silage-fed cattle in spring to put on grass, claiming that such cattle do not take to grass quickly. They say that rich silage contains alcohol, and that while cattle soon learn to like it, and to crave it, they do not so quickly lose the taste for it.

Some men claim it takes thirty days for the cattle to forget about silage and begin to do well on grass. They admit that the operation of turning silage-fed cattle on grass can be accomplished without loss of time or flesh when there is a silo to assist. That is, the cattle can be "tapered off" on the silage, and gradually worked on to a strictly grass diet, thus avoiding the shock incident to a sudden change.

On the other side of this question an Oklahoma man, who fed his cattle silage, cottonseed meal and molasses through the winter, showed me a letter from his foreman, written one week after the cattle were turned on grass last spring, while they were still getting silage, cottonseed meal and molasses, in which the foreman said he had to drive the cattle in to the feed every day. Evidently these cattle took to grass quickly. It is further claimed that the great paunch produced by silage establishes large stomach capacity, which enables these cattle to assimilate more grass than others.

Stamping Out Cholera

By O. R. Geyer

A SEVERE setback for the hog-cholera epidemic, which has caused so much loss to the farmers of the Middle West, is indicated in the report of Dr. J. S. Koen, inspector in charge of the Federal experiment work being carried on in Dallas County, Iowa, after eighteen months of earnest application of the serum treatment. During that time the percentage of loss has been reduced from 23.4 to 5.1 per cent, which is a saving of more than $75,000 to the farmers directly benefited by the Government's new work.

Dallas County was one of the three counties in the Hog-Belt country selected by the Federal Department of Agriculture in which to wage a determined war on hog cholera. It is a typical midwestern county, located in the heart of the Corn-Belt region, and the work being carried on by Doctor Koen, with the assistance of members of the faculty of Iowa State College, has demonstrated that the methods are applicable to any other county.

Early in 1912 hog cholera had gained such a foothold in Dallas County that the farmers were throwing up their hands in dismay at the idea of combating anything so hopeless as the epidemic that had caused the death of many thousand hogs each year. In that year the farmers raised 84,618 head of hogs only to lose 19,821, or about one-quarter of the total number, through the ravages of hog cholera.

The campaign of vaccination was inaugurated in the summer of 1913 by Doctor Koen and his assistants. In 1913 Dallas County's contribution to the livestock population of the state was 118,550 head of hogs, and only 12,000 porkers came to an untimely end as the result of cholera. During the six months of the year that the experimental work was being carried on the percentage of loss from cholera was reduced to less than a half that of 1912.

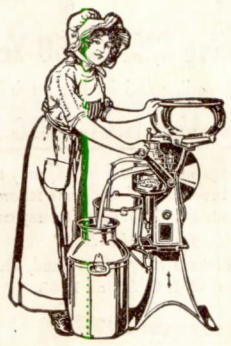
The year 1914 was the first full year in which the fight was waged, and the percentage of loss was again cut in two, this time being reduced to 5.1 per cent. The farmers, encouraged by the success of the Government and state college agents, paid more attention to the hog-raising industry during 1914, with the result that the year's total was raised to 138,320, an increase of 53,702 in the year and a half. Hog cholera claimed but 6610 hogs during 1914.

Last year the Government agents vaccinated 11,045 hogs in 206 infected herds. The result was that 9152, or about 82.8 per cent, of the hogs in these infected herds were saved, while 1893, or 17.2 per cent, were lost. The value of this experimental work can easily be seen when it is found that at the market price at the time the work was being carried on the hogs saved by the treatment were valued at approximately $96,096.

In thirty-three other herds, 2089 hogs did not receive the serum treatment, and 1755 members of these herds died, making a loss of 84 per cent. By using this percentage of loss in the case of the 206 herds which were vaccinated it is found that only 1766 porkers instead of 9152 would have been saved had the treatment not been used. Doctor Koen estimates that the serum treatment saved the farmers directly affected more than $75,000.

The checking of the ravages of hog cholera has resulted in Dallas County's making steady strides toward the top as a hog-raising section. A continuation of the increase of the last two years will mean that Dallas County will raise nearly 160,000 head of hogs in 1915, almost double the number raised in 1912.

One result of the campaign is expected to be the early extension of the work to other counties where the disease has laid a heavy toll upon the herds of the farmers.



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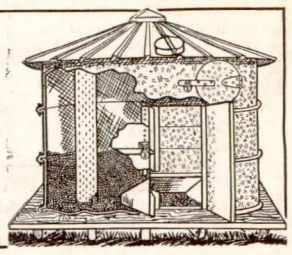

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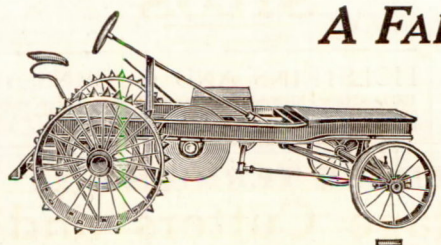

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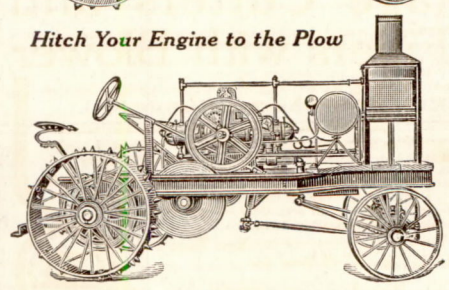

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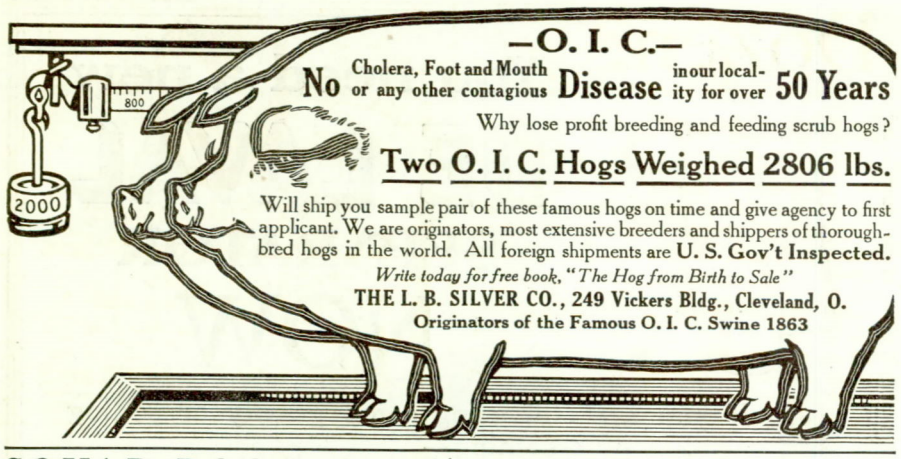

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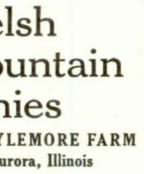

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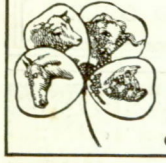

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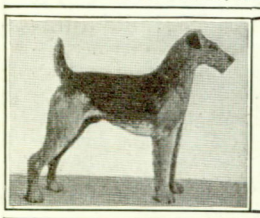

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White Scotch Collies No farm or city home is complete without a big, brave White Scotch Collie. The Collie is the greatest dog in the world for herding cattle, sheep, hogs, goats, horses or poultry. Guards the home and orchard against two and four-legged enemies, is a tireless playmate for children, a partner for the boys and a sleepless and fearless protector for girls on all occasions. A sensitive companion for adults and the most aristocratic dog for a young lady desiring a beautiful, graceful pet. They are a great comfort for old people, or nervous women whose husbands are away much of the time. Ours are hardy, strong, brave, enduring, active, pedigree, country-raised stock, suitable for any climate from Canada to Texas. A pair will raise over $200.00 worth of puppies a year, yielding more profit than several cows or a large flock of chickens. They more than pay for themselves by the work they do, the property they protect, or the young puppies they raise. Prices reasonable. Letters cheerfully answered.
THE ISLAND WHITE COLLIE KENNELS, Dept. A, OSHKOSH, WISCONSIN

Worst Enemy of Chicks

Lice Cause More Trouble Than All of the Poultry Diseases

By J. Gaylord Blair

I RECEIVED a letter the other day from a woman asking how she could successfully raise small chicks during the summer. In telling of her past experience she said that in years before the little fellows slept themselves to death. She did not know or realize what was causing the chicks to die, but blamed the warm weather. Many others are having the same trouble—and lice are causing it.

Most poultry keepers do not realize that lice are their worst enemies, and they make little effort to rid their birds of these pests, which sap the profit from their flocks. Any experienced poultryman will tell you that lice cause more trouble than all the poultry diseases—in fact, nine times out of ten lice are back of any sickness in the flock, as they will cause the birds' systems to run down until disease can get hold easily. Matured birds can endure these pests much longer than small chicks; if you wish to see real loss let a flock of small chicks become lousy—they will die by the hundred. Lice breed very fast during the summer months.

We hear a great deal these days about swatting the rooster, so all eggs will be infertile and will keep longer in summer. This is all good, but we should also hear more through the farm and poultry press about fighting lice: "Swat the louse."

Lice Eat Up Profits

A woman called me by telephone a few weeks ago and told me that she thought her little chicks had contracted white diarrhea. I went to see her chicks. They had been hatched in incubators and were being brooded in outdoor brooders. Much to my surprise the entire flock was covered with lice, which had caused them to contract a diarrhea in some way and they were dying one by one.

Generally one or two lice on the head of a small chick will prove fatal. If the breeding birds are lousy you will hatch only weak chicks—the chances are you will not be able to raise any of them to maturity. Many times such a failure is blamed to the incubator or brooder if they are hatched artificially, or to the method of feeding if hens are used. It is hard to get a good egg yield from lousy birds and I am sometimes of the opinion that this is the reason why the farm flock does not make a better showing. It does not matter how good attention you give your birds, how well you feed them, or what you feed them, if they are infested with lice you cannot realize any profit from them.

There is no reason for anyone tolerating lousy birds, for there are too many good and reliable preparations on the market with which you can soon rid your flock of the pests.

Lice have six legs and on each leg there is a pair of sharp claws. Their bodies are oblong in shape and vary in color according to variety and age. Lice do not suck blood from a bird, but live on and among the feathers. It is possible that they drink blood that comes from the abrasions of the skin, but they have no sucking organs. They are a source of great irritation to the bird and if the skin is tender they will cause bad skin disease. When lice are present in large numbers they will cause the bird to fret and suffer, which of course tends to weaken the constitution. If little chicks are affected they cannot withstand the pest and soon become dumpish and die.

Lice breathe through the pores of their skin, and if you dust the birds thoroughly with a good powder this will kill the pests.

In looking for lice examine the feathers near the vent and between the legs as these are the favorite places for them to work. If you find only a few do not think it is unnecessary for you to do anything. Get the start of them. It is estimated that in eight weeks one louse can produce from itself and its offspring 125,000 lice.

Lice seem to thrive on birds that are listless or droopy and rough feathered. They cause the combs to become pale and the birds to appear sick. They rarely breed on chicks unless the birds are exceptionally strong and old enough to resist the strain. They breed on the older fowls, laying eggs in clusters among the soft, fluffy feathers near the vent.

In fighting lice remember that they are deep in among the feathers. In using lice powder, work your hand down into the feathers so it will reach the skin. Birds should be dusted at least every ten days until you know they are absolutely free from the pests.

In this way you can kill those that hatch out after each treatment. Several birds may be dusted at one time if you use an automatic lice-killing machine. In using this, you place the powder and birds in the machine and simply turn the handle seven or eight times; the powder is worked well into the feathers.

Another way to kill lice is by use of a liquid lice killer. Paint the inside of a box with it, place the birds inside and cover with a piece of burlap, letting the birds remain in this box for twenty to thirty minutes. You will see the dead lice on the bottom of the box where they drop off the birds.

Have the box large enough to accommodate at least ten birds. Do not use too heavy burlap, for you want enough fresh air to enter the box to keep the birds from smothering to death.

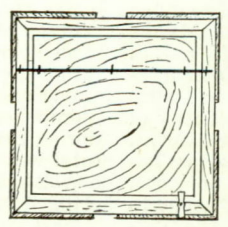
A Cheap Trap Nest

MANY poultrymen who could use trap nests each season to good advantage in sorting out loafers from layers never have such equipment because of the expense. Here is a trap nest to meet their needs.

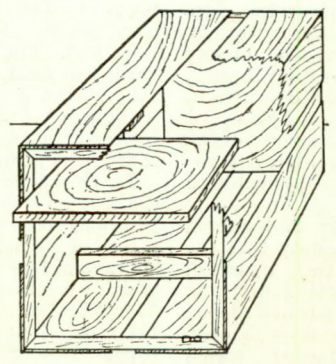
The only materials needed for each nest are an orange crate, a few staples, a short piece of heavy wire, a screen-door hook and a door button and screw.

Remove the middle partition from the crate, and saw it up into five two-inch strips, four of which are mitered together to form the front frame, while the remaining one is fastened on the floor to hold the nesting material in place. I make my nests twenty inches long, so the frame is nailed in the crate four inches from one end, which is then sawed off flush. This end of the crate is hung with the piece of wire and staples to form the door. When one is through trap-nesting for a time the wire is slipped out, the door is removed and stored away, and a good general-purpose nest remains. The orange-crate nest has always held high favor with poultrymen because of its economy, lightness and good ventilation. All fine particles of litter and dust work out upon the floor through the cracks in the bottom. Each nest can be built for about five cents.

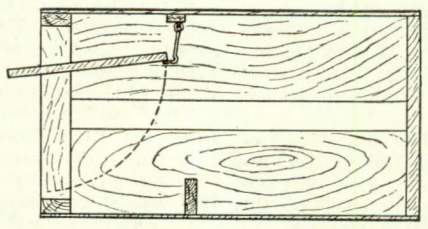
M. H. DECKER.



Door End of Trap Nest



Showing Inside Construction



How the Door is Held Open

How Many Eggs in a Dozen?

There Aren't Twelve So Long as Quality is Not Considered

By Milligan C. Kilpatrick

A GREAT many people have the same idea of a dozen eggs, especially during the summer, as the grocer's son, who, when asked how many eggs there were in a dozen, replied without hesitation: "Six good ones, four bad ones and two doubtful ones." It is unfortunately true that a large proportion of the eggs that find their way to our various markets count out no better than that definition.

A great many producers, instead of being familiar with the factors that determine the market value of an egg and the relative importance of these factors in various markets, are ignorant of the fact that eggs are ever graded. The fact that they are paid for eggs on the "case-count" basis, by which every egg having a good shell counts, is responsible for this condition and also for the large number of bad eggs that are sent to market.

Eggs should be bought and sold on the basis of actual quality. It is unfair to all concerned to buy and to sell eggs on any other basis. It is unfair to the careful producer because he receives a low price for good eggs in order to help pay for bad eggs purchased from the careless producer. It is unfair to the dealer because it does not allow him definitely to fix the responsibility either for the good or for the bad eggs, and he has to guess at the percentage of bad eggs that he will receive each day and set his prices sufficiently low to offset the losses. This, in turn, is unfair to the consumer because he must help to pay for the dealer's poor guesses and for the unnecessary expense entailed by allowing poor eggs to reach the market. It is unfair to the egg trade in general because it tends to discourage rather than to encourage the production of eggs of prime quality.

Unfortunately there are many difficulties in the way of putting the egg trade in the producing districts upon a uniform quality basis. The principal difficulty is to maintain a definite basis for grading eggs. Practically no two large markets follow exactly the same system; consequently there is confusion in the producing districts. Many of the grading systems in force in the large markets vary with the season, and few small shippers are acquainted with these flexible standards. A uniform grading system applying to all markets and to all producing districts is highly advisable.

What a Good Egg Is

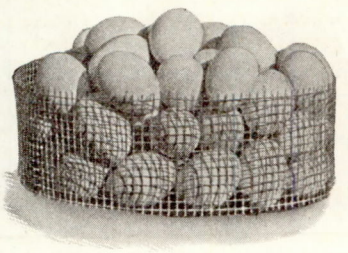
The market quality of an egg depends upon its freshness, interior quality, size, shape, color, cleanliness and freedom from cracks.

Freshness and interior quality, which are the most important, can be determined only by candling—the process of examining the interior of an egg by rotating it before a strong light. Freshness depends upon other things besides age. The external appearance of an egg is no definite indication of what is contained within the shell. Changes that may destroy the freshness of an egg or make it unfit for food may occur within a few hours after laying without in any way affecting external appearance. For these reasons thousands of producers are marketing worthless eggs throughout the summer, feeling confident that every egg they send to market is of prime quality.

Size, shape, color, cleanliness and freedom from cracks may be determined by handling and inspection without the aid of the candle. Size, cleanliness and freedom from cracks are the most important. In many markets no attention is paid to shape and color except for the very highest grades; in other markets color is of great importance. In any system of grading, however, both these factors should be considered.

The color of an egg adds nothing to its food value, but it may add or detract greatly from the selling price. There may be as many grades for color as for size. Where white eggs are preferred a dead chalk white is necessary in order to grade extra first. Eggs that may be extra first in size, shape, cleanliness and quality, but that have a cream, brown or green tint, will be classed in a lower grade on that account. Brown eggs should be a uniform brown over the entire shell, and the lot, whether a dozen or a case, should be as uniform in color as possible. New York and Boston are more particular with regard to color than any other markets. Differences in color alone of various lots of white eggs often result in differences of several cents a dozen in selling price.

Shape is another characteristic without food value, but with influence on market



value. An egg of medium type is desired. It should be oval, slightly larger at one end. Long, pointed eggs and short, thick, rounded eggs are objectionable, both from the standpoint of appearance and because they are more likely to be broken during transportation.

The following standard of grading is simple, convenient, and may easily be adapted to the requirements of any market. An egg that meets the requirements of this system for an extra first will meet the requirements of the highest grade of eggs on any market.

EXTRA FIRSTS. In order to grade as extra firsts eggs must be clean, full, firm and sweet, with strong shells; must be uniform in size, shape and color, and must weigh at least twenty-seven ounces to the dozen.

Before the candle the air space must appear small, about the size of a dime, the yolk being dimly visible above the center of the egg, moving slowly when the egg is turned. Out of the shell the yolk should be spherical and firm, with a strong membrane. The white should be firm and thick, two distinct layers of white being discernible. The germinal spot must show no development.

In order to grade as extra firsts, eggs must be marketed as soon as possible after they are laid and should be infertile. The supply of extra firsts never equals the demand.

FIRSTS. The principal difference between an extra first and a first is in size. Firsts must weigh at least twenty-four ounces to the dozen. Appearance before the candle and out of the shell is the same as an extra first.

SECONDS. Eggs that are reasonably clean, full and sweet, but show some slight defects in quality, are graded as seconds. They must weigh at least twenty-two ounces to the dozen.

Before the candle the air space must appear medium in size, about as large as a quarter dollar; the yolk is plainly visible, definite in outline at or below the middle of the egg, and moves quickly when the egg is turned. The white is watery, allowing the yolk to come close to the shell. Out of the shell the yolk appears flattened, sometimes mottled with deeper colored spots. The germinal spot is usually enlarged. The yolk membrane is distended and weak and breaks easily. The white is very watery. The two layers of white are not distinct.

THIRDS. In this class are placed all eggs fit for food that are not good enough to qualify as seconds, firsts or extra firsts, except checks and leakers. This class includes all eggs weighing less than twenty-two ounces to the dozen, all abnormally large eggs, double-yolked eggs, eggs of poor shape, stained eggs, stale eggs, and eggs that show large, loose air spaces and dark yolks sinking low in the shell.

CHECKS AND LEAKERS. A check is an egg the shell of which is cracked or slightly broken, though not enough to allow the contents to escape. A leaker is an egg so badly broken that the contents are allowed to escape. Checks, leakers, and the poorer third-quality eggs, will not stand shipment. The market always has more thirds, checks and leakers than it needs.

LOSS. All rotten eggs, stuck spots, moldy, blood-ringed or very dirty eggs are a total loss. It is a violation of the pure-food laws of most states to sell them or to offer them for sale, except for manufacturing purposes.

In order to meet the requirements of this grading system and to avoid loss, some effort on the part of the producer is necessary. Eggs deteriorate very rapidly in quality, especially during warm weather, and careful handling is necessary to get them to the consumer in good condition.

The following suggestions, if followed, will bring about the improvement so badly needed in the egg trade today:

First, produce only infertile eggs for market. The male has no influence upon the number of eggs laid. His usefulness is limited to the breeding season. Studies made by the Federal Bureau of Animal Industry show that the total loss of fertile eggs is approximately twice that of infertile eggs kept under the same conditions.

Second, avoid dirty eggs by keeping the poultry house and yard or range clean and by providing one clean, dry, well-ventilated nest for every four hens in the flock.

Third, do not wash market eggs. Washing eggs destroys their fresh appearance and also opens up the pores of the shell so that bacteria may enter and develop more freely. Washed eggs contain approximately five times as many bacteria as unwashed eggs of the same quality.

Cool Eggs Thoroughly

Fourth, gather eggs at least twice daily during warm weather and more often if convenient.

Fifth, handle eggs as little as possible. Every time eggs are handled their quality is lowered and their keeping qualities are impaired.

Sixth, before marketing, keep eggs in a cool, dry place in order to prevent chick development in fertile eggs, shrinkage and mold.

Seventh, cool eggs thoroughly before putting them into cases or cartons. When the egg is laid it has a temperature of approximately 103 degrees. Several hours are required for this animal heat to escape. Racks with convenient trays made with wire bottoms, similar to the egg trays of an incubator, should be provided on which the eggs may be placed when gathered, and allowed to cool over night.

Eighth, keep eggs away from bad odors. The eggshell is very porous and allows the egg to absorb odors and flavors rapidly.

Ninth, ship eggs to market in clean, strong, new cottonwood cases with good fillers, or packed in neat, attractive cartons. If cartons are used the two-by-six style will be found attractive and convenient.

Tenth, market eggs at least once a week, and more often if possible. Daily shipments are advisable if the supply is large enough.

Eleventh, in preparing eggs for market pack carefully in order to avoid breakage. Use half an inch of clean, dry excelsior at the bottom and at the top of the case, and see that it is uniformly distributed. The cushion fillers and corrugated flats for packing egg cases are more attractive and more convenient than the excelsior.

Twelfth, remember that the bad eggs marketed are paid for indirectly by the producer through lower prices paid by dealers. If dealers could be sure that every egg they buy from May first to October first was infertile they could afford to pay several cents a dozen above the prices usually prevailing during this period. If the consumer could be sure that every egg bought during this period would be a fresh, infertile egg of good quality, demand would be increased at least fifty per cent.

Careful handling of the eggs from the time they are laid until they are consumed, and a spirit of coöperation between all parties concerned, from producer to consumer, are absolutely necessary if we are to reach the ideal condition where there are twelve eggs in every dozen.

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$1.25 each by 25
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EVERY bird is bred by Fiske, from Trap Nest layers. Here is an opportunity to start, at an extremely reasonable cost, the foundation for a stock of one of the highest bred White Leghorn strains in the country.
The best laying strain is none too good. Look up some of the Fiske prize winnings. They're all on record. In the meantime be sure you get some of these pullets.

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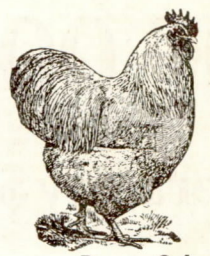

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of breeders from our splendid pens of the past season, at special prices. We must make room for our great young stock and offer you bargains too good to lose. Here is your chance to lay in a great foundation stock—at reasonable prices—of
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A 50% deposit will reserve you Birds for the early fall and winter shows—all in splendid condition—ready for shipment after August 1st. Prices reasonable for quality. Safe delivery guaranteed. Send for our fine new Catalog and Sales List. All free. Write promptly. Get the pick of our superb stock.
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CHICKS Low Summer Prices. 12 to 25 cent chicks, now 8 to 14 cents.
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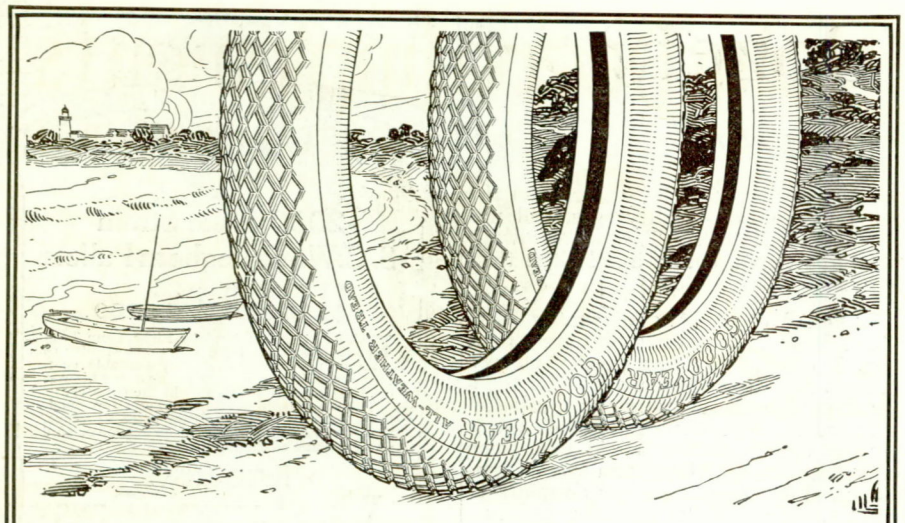
WANTED—500 Barred Rock Pullets, February or March hatch, good strong stock. Make price express paid to Princeton, Mass.
LAURELWOOD FARM, Princeton, Mass.

S. C. RHODE ISLAND REDS. Won 1st Pullet at both New York shows two consecutive years. High-grade utility breeding stock, also eggs for hatching. Send for circular.
MAPLECROFT FARMS, Box G, Pawling, New York.

R. I. REDS, WHITE WYANDOTTES, Light and Dark *Brahmas*, Barred *Rocks*, S. C. White and Brown *Leghorns*. Show and utility quality. Illustrated catalog free. Hatching Eggs, Chix and Breeders.
RIVERDALE POULTRY FARM, Riverdale, N. J.

BARRON'S 1913-1914 CONTEST WINNERS
S. C. W. Leghorns, Eggs from $2 to $20 per setting. Write for Circulars. OAK HILL ESTATE, Uniontown, Pa.



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$500,000 Better

Yet Users Pay $5,000,000 Less

Note these amazing facts:

Goodyear tires, as built this year, will cost us $500,000 more than if built like 1914 Goodyears.

That's because of improvements.

Yet this year's output will cost our users some five million dollars less than if sold at 1914 prices.

That's because of a big price reduction, made February 1st. It was our third in two years, totaling 45 per cent.

Why Better Tires?

You ask why we add that half-million dollars in face of such reductions.

We have always added every betterment our experts could discover. And we spend on research $100,000 yearly just to seek out improvements.

Goodyears may pass Goodyears, but we make sure that no rival ever can.

What Extras Cost

Goodyear Fortified Tires embody many extras. Five of them are features found in no other tire that's built. Others are found in but few.

Based on current output, those extras this year will cost us $1,635,000.

That is, if we omitted our exclusive features, which all others do omit —

And other protections which most makers omit —

We could probably add to our profits this year more than 1½ million dollars.

But What of You?

But Goodyear users would pay. Those extras save our users many times the cost to us.

In those extras lies the reason why Goodyear outsells any other tire. And in that mammoth output lies the reason for the value that we give.

Think of these things when other tires are offered. Each Goodyear extra means a saving to you. Any dealer, if you ask him, can supply you Goodyear tires.

(2413)

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Raising Alfalfa Seed

Keep the Fields Clean and Free From Weeds

By Charles J. Lisle

This Load of Grimm's Alfalfa Seed, Raised by H. K. Wiley, of Idaho, Was Sold to the Department of Agriculture for $2644

A VOUCHER of the United States Government for $2644 was the price received by H. K. Wiley, of Bingham County, Idaho, for one wagonload of Grimm's alfalfa seed, sold by him to the Department of Agriculture for general distribution throughout the United States.

Grimm's alfalfa was introduced by a German immigrant, Wendelin Grimm, who settled at Excelsior, Minnesota, fifty-three years ago. He brought twenty pounds of alfalfa seed with him from the Fatherland, which he sowed and cultivated. He was enough of a botanist and expert farmer to note a few particularly hardy plants that stood the heroic winters and the almost equally heroic summers of Minnesota better than their neighbors. These he saved for seed, developing from them the present truly remarkable strain of Grimm's alfalfa.

The plant is earlier and hardier than ordinary alfalfa. It is especially adapted to the colder sections, where the latter is inclined to freeze out in winter. In the severe climate of Minnesota there are fields twenty years old that a temperature of fifty degrees below zero has never seemed to injure. Neither variety is likely to suffer severely in Idaho, but the Grimm's is considered a positive insurance against the hardest winter, even in Minnesota, with its polar winter.

Mr. Wiley is now growing Grimm's on a contract with the Department of Agriculture. He has a new, clean, irrigated farm, at an elevation of 4350 feet, and on a bench overlooking the Snake River. He was a farmer in Illinois, and then for ten years a market gardener at Rocky Ford, Colorado, before coming to his present location—a good training for the real farmer.

Double Duty of the Nurse Crop

The alfalfa is seeded in rows, twenty-eight inches apart, with two pounds of seed to the acre, cross-seeded over barley or wheat for a nurse crop. The nurse crop is not expected to loaf on the job, but to do full duty for the farm instead of merely protecting the little seed crop. In 1914 a ten-acre field so sown produced 975 bushels of six-rowed barley, besides nursing the prospective alfalfa for the season. The ground had previously had alfalfa for three years, and then potatoes for one year before this barley and Grimm's were seeded. The Grimm's made a fine growth after the barley was harvested and the crop promised as well as if the barley had not been there at all.

The second year the alfalfa is cultivated as corn would be. Only one crop is cut for the year; but the field is closely pastured until about the middle of May. The pasturing is considered quite important. Tests have shown that the seed yield on the pastured fields is fully double that where the earlier bloom was allowed to fill for seed.

The crop is never watered more than twice in the year. The fields are well watered late in the fall, with the idea of getting sufficient moisture into the soil to make one summer watering sufficient. Too much water during the growing season makes a too luxuriant growth of stalk, and the seed will not ripen nor cure so well as when the minimum of water is used. Nature is little concerned with seed so long as the plants are growing enormously; it is when the growth shuts off, and it looks as if winter and hard times were in sight, that Nature does her best to develop seed to reproduce and perpetuate the kind.

The crop is cured and threshed in the usual way, only that especial care is taken to keep out all foreign seed. Before beginning work, the thresher is scrubbed and dusted like a lady's parlor so that in no obscure corner can there be a foreign seed to mix with the precious crop.

The seed yield is better, in both quality and quantity, in the cultivated rows than in broadcast seeding. Mr. Wiley uses only one-fifth as much seed to the acre as would be put on for pasture or for hay.

Threshed Straw for Sheep

Other growers near Springfield have made some exceptional yields. E. L. Wells sells his ordinary alfalfa seed to the Government for distribution to the Indians on the neighboring reservation. He received one Government check for $2098.13 for seed in 1914. W. L. Snyder is also a grower of note. The three men took all four prizes on alfalfa seed at the Idaho State Seed Show in 1914—one of the stiffest competitions in the whole West. Their seed is competing for the world's championship at the San Francisco-Panama exposition.

Constant care to keep the fields clean and free from all weeds and other foreign seed is the essential for a successful seed grower. A clean water supply in an irrigated country is also a boon.

There is considerable value in the threshed straw; a good seed crop will make a total yield of one and a half to two tons to the acre, of which the seed itself will constitute only a few hundred pounds. The straw is too well grown and woody to be the best feed; but still it has value, especially for sheep—probably half the value of alfalfa cut in season for hay.

Some of the Springfield seed growers practice rolling their crop with a field roller when the plant is in full bloom, to assist in pollination. They believe it is at least helpful, though not necessary. The introduction of bees has materially increased the seed yield.

Mr. Wiley, during the eight years he has lived on his now nationally famous seed farm, has adopted a crop rotation that is bringing results. It is as follows: Alfalfa, sown with grain, one year; alfalfa alone for two years; potatoes, one year; grain one year, and back to alfalfa. The alfalfa is never left more than the three seasons; if left longer it thickens up so that it chokes itself and destroys its seed-bearing capacity. The above routine is making the Wiley farm as productive as a bank. Mr. Wiley is able to afford the luxury of serving as president of the Southern Idaho Producers' Association, which did more than a million dollars' worth of business direct from producer to consumer in 1914.

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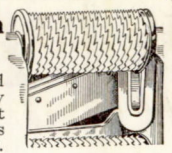

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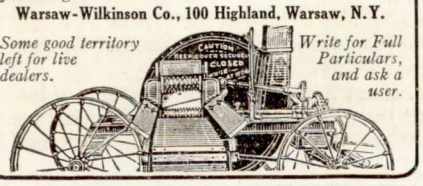

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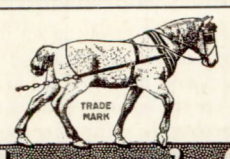

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Dry Farming in Arizona

By Stanley F. Morse

IN CENTRAL ARIZONA it frequently happens that in the midst of an area where rainfall is abundant there will be spots that receive little or no rain at all, usually because the rain is precipitated on the other side of a mountain or the other side of a valley. If this is the case, the owner of such a piece of land has little chance of succeeding by purely dry-farming methods. His only hope is to secure enough water from the wash by means of a dam.

In order to do this it will be necessary to fix the land with high borders so that the flood waters may be run on to it to a depth of two to three feet, and allowed to soak in. As soon as the water has soaked in and the surface of the land is dry enough to work, it should be harrowed with a disk harrow or plowed and then harrowed in order to form a mulch to conserve the moisture. By this method a limited amount of land may be irrigated and the moisture held to grow summer crops. Typical rich, black, mountain soil is very desirable for this kind of farming, provided it is deep enough. If underlaid with hardpan or gravel within three feet of the surface, it is not likely to be very successful. It is desirable that soil for this purpose be of uniform depth to a distance of six to eight feet.

When not being cropped, the land should be kept well cultivated. It is desirable, however, that the mulch be not too fine, but what is known as a clod mulch—that is, the mulch should be made up of small clods and should not be reduced to a fine dust. The clod mulch is desirable because when a characteristic Arizona rain comes the soil is not beaten into a hard surface, as will happen if there is a fine dust mulch.

All kinds of crops should receive sufficient cultivation to keep the soil loose, and to keep subsurface crusts from forming. Crops sown broadcast, such as wheat, barley or sorghum, can be cultivated with a spike-tooth harrow or a weeder with the teeth set backward. Row crops, such as corn, feterita and the like, should be kept well cultivated with a fine-tooth cultivator.

Silage for Livestock

Probably the safest line of farming for such a locality and such conditions will be to grow a crop like feterita or amber cane, which requires a very small amount of moisture. These crops should be allowed to grow either until the drought comes or until the grain is almost mature. They should then be cut up fine with a silage cutter and packed tight in a pit silo about ten feet in diameter by twenty feet deep. If the crop is rather dry, a quantity of water should be put into the silo along with it and the whole firmly packed. This material can then be used to feed livestock.

It has been said that livestock will live in a country that is too dry to support profitable crop growth. Large cows should be kept on range while it is good and fed on the stored silage when the range gets poor. These cattle should preferably be kept in a fenced range or pasture and brought in at night to be milked.

Besides feterita and amber cane the farmer may plant a small area of beans, using some of the acclimated pink beans that have been grown at the Prescott Dry Farm. These will perhaps yield him a small money crop and give him enough for his own use. Also, if he has a slough or draw where the water collects, but which is not a stream during storms, this would be a good place to plant alfalfa, using seed raised under dry-farming conditions, and sowing only about five pounds to the acre.

If, on the other hand, he can develop sufficient irrigating water he can plant alfalfa more thickly, using twelve pounds to the acre, and irrigating it whenever possible. In addition to these crops potatoes should do fairly well. They should be planted in rows about four feet apart, eighteen to twenty-four inches apart in the row, and thoroughly cultivated. Acclimated seed may be secured either from Colorado or from the Prescott Dry Farm.

One fundamental and very necessary practice in connection with farming with limited moisture is thin seeding. Much less seed should be used under these conditions than where there is ample water.

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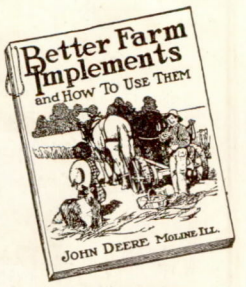

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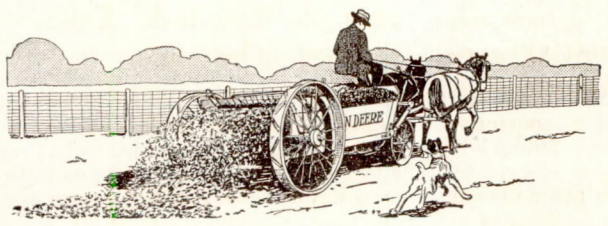

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"You Don't Arrive Till Next Thursday," He Announced

The House on the Hill

By Louise Elizabeth Dutton

ILLUSTRATED BY LESTER RALPH

YOUNG Laurence Prescott strolled into the sunny, paneled dining room of the Prescott house, just as the clock on the stair pealed nine. He had had his early tea, his tepid bath and his alcohol rub. The butler—there were seven second maids, but only one butler in Prescottville, and Hawkins seldom seemed to forget the fact—drew back his chair with a decorous, welcoming smile. His mother began to pour coffee from the pot in her right hand and hot milk from the jug in her left in an accurately blended stream. He watched with content in his brown eyes.

It was largely his eyes that had made the Prescottville boys pronounce him too good-looking, and christen him Laura in his high-school days. But a series of hard-fought fights had proved he was not effeminate. The fights and the base connotation of the name were forgotten now, but he was still Laura to his crowd, because nicknames were its rule. He affected slouchy clothes and inconspicuous ties, but his eyes remained decorative and conspicuous. He played inspired Kelly pool and carried off golf and tennis championship cups; he had made the Eleven in his freshman year, but his eyes were the eyes of a poet and dreamer and ladies' man, eyes that said more than he meant, or knew they said—big, soft, tender, brown-velvet eyes.

This was the first morning of his Junior vacation from Harvard. No coffee, he was thinking, smelled like old Norah's; no house was so smoothly run as his mother's; there was no place like Prescottville. He tasted his perfectly chilled grapefruit appreciatively, and attacked his morning mail.

"Uncle Geoffrey," he announced, reading the top letter on the pile, "has rented the house on the hill."

He went on to further facts—a meager and unsuggestive set of facts they looked, on the face of them. "For the summer. To a Mrs. Veronica Varden, of New York. One maid, one daughter, named Lenore. Peach of a name, Lenore."

Having exhausted the subject, he reached for the Prescottville Weekly Record, out that day. But he did not read it. His mother's expression arrested him. To his masculine mind there seemed to be nothing in his uncle's letter to account for it. He waited for an explanation. After a hushed little pause, it came fluently:

"The house on the hill? I never heard of such a thing. Nobody has slept there since your Great Aunt Melissa died, except the caretaker, and they say she sees ghosts. All the Severance mahogany in the hands of strangers! That pier table I have offered Geoffrey any price for, but money is no object. He must have twenty thousand a year, if he has a cent. He does not need to rent that house; he never has rented that house; why should he rent that house?"

"Why not?" asked Laurence. His mother smiled unhearingly.

"And why should this Mrs. Veronica Varden—it sounds like an actress, or worse——" Mrs. Prescott's tone implied that few things were worse—"take the house? Prescottville is not a summer resort."

"If it were, would I be going to Canada next month?" inquired her son gently. "Hawkins, tell Norah two four-minute eggs, and leave the shells on."

"A house she has never seen! An inconvenient old barn of a house! Carved mantles and wainscoting are all very picturesque, but fourteen rooms and only one bathroom—fourteen rooms and only one maid ——"

"Sounds like a problem in mental arithmetic."

"Oh, you may laugh, my dear. But the house on the hill is five minutes' walk from the Bosworths', and that cedar hedge has not been trimmed for years. If a murder were committed on the front lawn you couldn't see it from the road."

"I shouldn't want to," said Laurence. He took a reassuring glance at his letter. From these brief, businesslike lines his mother was evolving mystery. A postscript caught his eye. He read it through, and crumpled the letter into his pocket.

"Of course I shall call." Mrs. Prescott seemed prepared to give the newcomer the benefit of the doubt, with small hope of a good result. "I shall certainly call." At this point, Hawkins brought in the popovers, and the gathering cloud of disapproval disappeared from young Prescott's ornamental eyes.

The Prescott house was on Main Street, opposite the Paul Revere Inn, the more select of the town's two hotels, and half way between the station and the post office. At the edge of a broad stretch of lawn a row of lilac bushes protected it from the public eye. It stood midway between two little hills. The town had grown out across the hills to the north and south, and had straggled east and west along the sleepy little river that cut Main Street at right angles. Judge Bosworth and the president of the national bank and the superintendent of the soap factory lived in seclusion on the outskirts; but in the old ship-building days, before the soap factory had been built or thought of, when Great-Grandfather Prescott made his money and earned the title of lumber king, the town grew up round the Prescott house.

The inn sign had a fresh coat of paint, and shone bravely gilt today in the morning sun. The maples in a double row along the upper residential section of Main Street were tender green with new leafage. When his breakfast was over, young Prescott started off under the maples toward the post office.

Main Street was Prescottville's Broadway and Fifth Avenue in one. You felt the pulse of the town there; the town gave you all it had, which is the best you can expect of a little town—or a big one. Laurence had never outgrown his small-boy sense that anything might happen on the way to the post office.

"I spy," an arch voice called to him from across the way. He promptly crossed the street to the Inn. The stoutish lady in starched white behind the boxed geraniums on the piazza was Mrs. Dudley Devereux. Since Mr. Devereux's death had left her impecunious she had managed the Inn, and had succeeded in keeping her social position in spite of it, if not in making the inn pay. Her elaborate witticisms about his intellectual progress, his personal appearance and Maisie Bosworth were always part of his homecoming. He was used to her.

"Well, Mrs. Dud?" he said.

Mrs. Devereux was frankly excited and out of breath.

"My dear," she panted, "my dear boy. Back once more upon your own hunting grounds. Such happy hunting grounds. A certain young lady has passed your front door five times this morning in a touring car. I won't keep you here talking to an old woman like me. I just called you in to ask—you have heard from your uncle, I presume? So did I, last night. He thought I might be of use to them in settling. Now, in my professional capacity, I am at their service. But, er—what does your mother intend to *do* about the Vardens?"

She put a confidential, brilliantly manicured hand on his coat sleeve. "Strangers. Quite unvouched for. Such a sudden invasion. Does she, does anybody, know anything about them? Please be perfectly frank."

In a young gentleman with less charm of manner, Laurence's protracted silence would have seemed rude. As it was, Mrs. Devereux leaned delightedly across the geraniums. "You mean," she gasped with awe, "that you cannot be frank? That they are—socially impossible?"

"My mother, I believe, intends to call upon Mrs. Varden." Laurence lifted his cap with such an ingratiating smile that his departure did not seem abrupt at all. "Good morning, Mrs. Devereux."

With the bright expectancy of his look only a shade dimmed, he walked on as far as the town hall. There he stopped to look at a poster, lurid with reds and greens, representing a lady in red décolletage and a gentleman in evening clothes and a black mustache at death grips on a fire escape. It was advance paper of a "ten, twenty and thirty" repertoire company—a form of entertainment that only a few years before had been irresistibly alluring to him. He had ushered with the other boys in the town hall—had even suped there.

"Ah there, Laura," he heard suddenly in hearty tones behind him. Harold Myers, just home from the state university, was working off superflous energy by driving his father's grocery wagon. Mrs. Myers entered the Prescott drawing room only on the occasions of church affairs, but her son, known as "Happy," for reasons connected with his smile, was as popular as he was cheerful in all Prescottville circles. And he had been quarterback of Laurence's high-school football team.

"Want a job, Laura?" He jerked at the reins of his big white horse, but by untiring effort he had just imbued it with the idea of speed, and it was too old to change its mind abruptly. "Fiery steed," he apologized, grinning, as he was borne past. Everybody laughed at Happy. He did not have to say anything funny. He was funny.

"Say, Laura," he called, looking perilously back as the wagon careened on two wheels round the corner into School Street, "what's all this about mysterious strangers in the Severance house?"

Laurence stopped laughing. The red and green poster, too, ceased to allure him. With both hands deep in the pockets of his Norfolk jacket, a tall figure, with a slim distinction of build that the slouchiest of clothes could not disguise, he proceeded to the shopping district.

Post-Office Square was the business center of Prescottville. All the leading shops were on lower Main Street. This was the rush hour. Laurence could have counted three automobiles, five farm wagons, two buggies and a runabout, all on the street at once, if he had been disposed. He was not disposed. He had lost interest in his surroundings. The brooding dream in his eyes was this decorative young man's nearest approach to a sulky look.

In the post office he bought picture post cards and mailed them, evidently getting little satisfaction from the ceremony, and completing it with undue brevity, considering his old friend Milton Sears was assistant postmaster and talkatively inclined.

When he came out he found the Bosworth touring car drawn up at the curb. It was waiting for him; he had been stalked from afar and headed off at the post office. But he was used to that, and it rather flattered him. Both seats were crowded with girls, and they made such an effect, with their flutter of light-colored gowns and excited welcomes, that it was hard to believe there were only five of them. The prettiest girl in Prescottville was driving. Her rose-colored veil looked quite new, and had probably been put on—even bought—for his benefit.

"Maisie," he said, grasping a small, firm hand, and looking up into dark, dancing eyes. Before such an alert audience, how could she ask him to call that night, or make him an intimate welcome? What would she say?

"Laurence, I'm so glad to see you. I'm crazy to talk to you."

Poor little Maisie. How plainly she showed her feelings—too plainly.

"For we want to know who has taken the house next door."

When the Bosworth car went lurching on its way at its usual speed, Laurence was not in it, to the surprise of several interested bystanders and probably of Maisie herself. He offered the girls ice-cream soda, supplied them with a five-pound box of Prescottville's favorite confectionery, and stood on the corner bareheaded to watch them go. Then he hurried across the square, to the bank building.

The national bank was sheltered behind a gleaming new plate-glass window. Laurence climbed three flights of polished stairs, smelling now as always of soap, to a door on the top floor.

"Prescottville Record. Editorial Offices," the imposing sign read.

"Hey, Tish!" Laurence called, and threw open the door without knocking.

Behind the rail that bisected a room so small it was hardly worth dividing, a very thin, red-haired young man sat at a littered desk, rapidly creating worse litter. This was Elmer—or "Tissue"—Hyde, the entire reportorial staff of the Record and, though both were too much afraid of sentiment to have admitted it, Laurence Prescott's best friend in the world.

"Look who's here," cried Mr. Hyde delightedly.

Presently Laurence was in his old place, hunched into an ungainly, but unbelievably comfortable, attitude on top of

the editorial desk. "Well, how's everything?" he inquired comprehensively. "What's doing?"

Mr. Hyde studied some scrawled sheets he had rescued from the desk. "You don't arrive till next Thursday," he announced. "It was too late to get you in this week's issue. I'm featuring you then—one of Prescottville's most promising sons. Next item to Dave Bosworth's new cow—Jersey he's just bought. Oh, this is a dead town."

"Alive, Tish," corrected his friend with recurring gloom, "and kicking."

But Mr. Hyde was now on a favorite theme, and not to be checked. "Cows—Jersey cows, but not even full-blooded Jersey. And there's a war in the world. We do run war editorials, but I don't write them. Old Rhodes does. A war in the world, and wireless telephones, and the Corliss case ——

"No, you haven't heard of the Corliss case. That's the beauty of it—the way they're keeping it out of the papers. But what leaks in is good dope—millionaire, mysterious lady—but what do you care? You have no news instinct; I have." Mr. Hyde seemed to think this gift a misfortune. "Cows!

"Maybe even this won't get you the way it gets me." He offered for inspection an item of news on one scrawled sheet. "I heard it from Mrs. Dud. Look at the possibilities. Who is she? What is she doing here in a one-horse town? Makes me feel like a Sherlock Holmes, like ——"

"You too." Laurence groaned, and dropped the sheet disgustedly.

"Mrs. Veronica Varden and daughter," the item read, "are passing the summer in the Severance house."

"What's eating you?" said his friend, concerned but curious.

But Laurence Prescott had more reserve than the world gave him credit for. He did not explain what was eating him. After a brief but thoroughly enjoyable interview he left the office, and strolled on up the hill, with the sunny little town behind him, having it out with himself.

What a gossipy town it was, though he had his roots deep in the soil of it; a malicious, sharp-spoken little town, weaving a whole tissue of suspicion and curiosity about a household of harmless strangers—unprotected women. All his chivalry was aroused.

He took out his uncle's letter, and tore it into bits, scattering them along the tree-shadowed, sun-flecked road. What a chance for conjecture that postscript would have given the town:

My tenant wishes the cedar hedge left untrimmed, and a Yale lock fitted to the latticed door. Please mention this to nobody, as it might occasion comment, but attend to it in person and at once.

Now he was passing wide, close-clipped lawns, set with geometrical flower beds, and a big yellow house with an aggressive porte-cochère—the Bosworth place.

"Looks as if they had shaved off its eyebrows," he observed disapprovingly. The road sloped gradually higher, parallel to the river that shone bright blue below. Tops of green trees and the roofs of the town, looking farther away than they were, took the sun. The spire of the ugly little church was a fairy thing as it twinkled in the distance. The town was too remote, too unreal, to cherish resentment against—a fairy town.

Just ahead were the thick, interlacing cedars that hedged the Severance place. He approached, somewhat awed in spite of himself, half afraid to peep into that green inclosure. Today a murder did not seem such a probable discovery there as, say, a fairy princess.

"Peach of a name," said young Prescott aloud, "Lenore."

II

"FRIED weakfish, vegetable hash, cold lamb, cold roast beef, cold ham," Elmer Hyde was enumerating. That was the Friday night meal at his School Street boarding house, and it was Friday night and supper time in Prescottville. He stood at the one window of the Record office, and watched the square wake up after a long, drowsy summer afternoon.

Street lamps threw out a pale, alluring flicker in the twilight. Shops were closing for the night, or lighting up—the ice-cream saloon, the two drug stores, and the new five-and-ten-cent store. The Harris girls, in pale colored gowns, bareheaded and with elaborate coiffures, paced arm in arm past the Myers store just in time to meet Happy coming out, expressed great surprise at the encounter, and went on up the street, with him between them.

At his open window Mr. Hyde could hear their accompanying titters as well as Happy's big laugh. The dentist in the adjoining office slammed a roll-top desk shut, and began to carol nasally:

I can't keep still no longer;
I got to sing.

Mr. Hyde had seldom felt less desire to sing.

The Franklin House hack rattled by among the home-going equipages, half an hour ahead of train time, in the daily vain attempt to divert custom from the Inn. The Vardens were due on the six-six train, but Mr. Hyde did not care. If they could think of nothing better to do than to spend the summer in Prescottville, that was all he wanted to know about them. Probably they were vulgarly rich, and would have noisy house parties. Very likely Miss Varden was fat.

The Prescott carriage rolled by, carrying Mrs. Prescott, in something frilly and white and expensive looking, and Laurence, dutifully driving her home from a round of calls. He held the reins between the correct two fingers, and the whip at the correct angle, and did not look up. Mr. Hyde turned abruptly from the window to his desk.

He bunched a pile of copy disdainfully, and whisked it into a drawer without a glance. It represented an afternoon's hard work behind locked doors, studying familiar quotations and a cook book. His copy was that week's installment of Aunt Myra's Mutual Benefit Column. Mr. Hyde was Aunt Myra.

The column was a clever adaptation of the woman's-page idea to the needs of a country newspaper, and was his own invention. Mr. Rhodes, his editor in chief, was also postmaster, and devoted most of his time to that more lucrative office. Mr. Hyde had his own way with the Record; that was one reason why the circulation had increased by a third in two years. But his salary was still twelve dollars a week.

He meant to be a big man in a small town, instead of a little man in a big town. He had never regretted this choice since he settled down in Prescottville after working his way through the state university. The year Hyde failed still marked a financial epoch in Prescottville, though the boy could hardly remember his father. There had been just money enough in his mother's name to make her last years comfortable. He had no near relations, but in Prescottville he was "among his own people," as Mrs. Dud said, and never lonely. He had carried the social life of the town on his alert young shoulders for two long, snow-bound winters, singing in the festival chorus, organizing a debating society, and playing the lead in amateur theatricals. He was content with his lot, and jealous of nobody, not even Laurence.

But tonight as never before it seemed that the world was opening before Laurence, and closing round him. He felt older than his friend, older than anyone else in the town. He wanted something, he was not quite clear what, nor hopeful of getting it. In his closely knit existence black hours were few, but this was one.

He heard a whistle under the window, and replied mechanically, with one long note and two short, the signal of his crowd. He stretched his cramped shoulders, got into the coat Aunt Myra had discarded in the throes of composition, switched off the light and started downstairs.

Laurence, now alone in the carriage, awaited him anxiously. "I've got to take a note to Mrs. Bosworth," he said.

Further explanation was unnecessary. Mr. Hyde stepped into the carriage and seated himself. Laurence was avoiding tête-à-têtes with Maisie Bosworth. He had been "getting in too deep." She was betraying a proprietary interest in him, and resenting the trip to Canada. Mr. Hyde guessed this by a kind of masculine freemasonry. The two had not discussed her behavior.

Laurence gave him the reins with a sigh of relief. He had had five cups of tea and had listened to five conversations about the Vardens—in its own way a strenuous afternoon.

"No hurry. Drive round the square first. And come back to dinner with us. How's the Only County Paper?" he said.

"Paper," said Mr. Hyde bitterly, turning up Main Street.

"Tish—I say ——"

Mr. Hyde stiffened. His friend's evident embarrassment could mean just one thing: He was about to offer to lend him money. This was an old argument, never settled.

"Don't say it," he snapped; then added more amiably: "Take back your gold, for gold can never buy me."

"You make me sick. You're stale on your job. You've—what do they call it—exhausted your environment. You need to get out of this town, and see something new."

"There is nothing new under the sun," said Mr. Hyde, in a tone that closed the subject.

They were near the station now—too near; the six-six train was just whistling at the crossroads, and the gate swung down over the railway crossing, barring their way.

"Elmer, back up. You can't run down an engine," advised the gateman.

"I sure couldn't, tonight," grinned Mr. Hyde, backing up.

There was a crowd of hatless girls on the station platform. Happy Myers was overworking the penny-in-the-slot machine, extracting gum and stale chocolate in unwholesome quantities.

"I weigh two-fifty-eight on the station scales, and they never lie," he announced gayly; "no use to diet now."

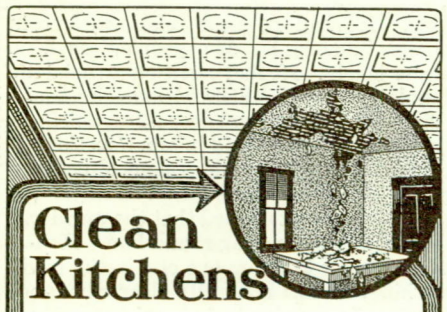
The six-six train was still an event of the day, though Prescottville was no longer a mere country town, as the metropolitan looking row of carriages attested—the Franklin House hack, the Inn motor bus, and the two "ten-cent men," Jerry with his battered yellow buckboard, and Shaky Scott, with a nondescript vehicle, rusty, high-shouldered, mustily curtained, a cruel weight for his knock-kneed horse. Children were driven to school in it on rainy days. Old ladies went in it to make calls.

"The Black Maria! Buckboard out of order, Scott?" Mr. Hyde's reportorial instinct, working automatically, prompted the question, but the old man's answer interested him unexpectedly!

"No, Mr. Elmer, sir, it's Mr. Severance's orders: Rain or shine, a closed carriage to herself for Mis' Varden."

Just then the headlights of the train came in sight, the engine whistled once more, Happy imitating the whistle indifferently,

"Laurence, I'm so Glad to See You. I'm Crazy to Talk to You"



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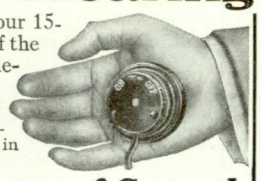

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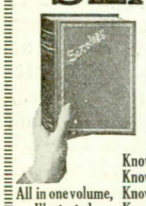

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but to loud applause. The girls on the platform crowded closer, or drew apart, pretending refined lack of interest. The four drivers lined up alertly. A solitary small boy suddenly appeared, perched precariously on the high board fence across the track from the station, waved his cap and shrieked. This stir and bustle of expectation were evidently to him the crowning excitement of an exciting day. Mr. Hyde sighed. How many times he had seen the six-six train come in, and how many times he would have to see it—always the same.

The boy on the fence lost his balance, and vanished precipitately, just at his great moment. The six-six clattered in, slowed down, and stopped. It stopped for only three minutes in Prescottville, but Prescottville was proud of those three minutes, for the train was the New York express.

A blondine lady put her head out of a Pullman carriage window, gazed straight into the Prescott brougham, and benevolently said:

"Where are we, Gerald? What a quaint little town."

Three minutes of excitement, and the audience must have waited fifteen for it. Now it was over. The train moved, pulled out. Three drummers stood on the platform, all familiar types—one plump and perspiring, one dark and insinuating, one who had been there before. He made straight for the Inn bus, and the others followed.

Mrs. Myers, back from a day's shopping at the Haven, where there were branches of Boston shops, was burdened with a wicker "curate's assistant," a scantily wrapped red jardinière, and a full shopping bag, topped by a Japanese lamp shade. Happy and the Harris girls were putting her into Jerry's buckboard.

Jerry embraced the curate's assistant reluctantly.

"Have to charge you ten cents extra, Mis' Myers," he said.

Mrs. Myers was considered "close," but if she protested Mr. Hyde did not hear her. He had just noticed Shaky Scott's passengers.

Shaky Scott, flirting a crumpled bandanna over the cushions with a flourish reminiscent of his palmier days, before he had a rival in Jerry, hovered in attendance. Three women stood by the Black Maria. Mr. Hyde did not know which interested him most.

One was frankly middle aged. She showed it in the color and cut of her gray gown more than in her face, which had the soft bloom of a flower just before it fades. Her figure was gracefully rounded. She was not old, but she clung to her daughter's arm with an unmistakable air of helpless dependence. She looked dazed and bewildered, almost afraid. The girl showed a tender, protecting deference in every word and look.

The girl wore a flat, white-veiled hat that said Paris, and a plain blue-cloth suit that said London and would have to eyes less expert than Aunt Myra's. In spite of her day in the train her violets were still fresh. Her wide-open eyes looked like violets. Mr. Hyde was not proud of the comparison, but it forced itself upon him. She was the most beautiful girl he had ever seen. He accepted the fact calmly, unstirred by it.

The odd thing about the third newcomer was that two such fastidious gentlewomen should have selected so unprepossessing a maid.

Her manner was irreproachable, as she stood respectfully at one side, holding a small, silver-mounted dressing bag. But her plain black suit, though in good taste, was a grotesque misfit; the floppy hat that shaded her face was disproportionately large and unsuitable for travel. He caught a glimpse of horn-rimmed spectacles, with round yellowish lenses, and thought them the most disfiguring thing a woman ever wore. A strand of gray hair was straggling untidily loose, and she pushed it back with a hand in a clumsy cotton glove. What a difference clothes made, he thought. As they stood side by side, this gaunt woman was just the height of her young mistress and somewhat her slender build, yet she looked far taller.

Old Scott swung the dressing bag under the driver's seat, and grasped the maid by the elbow to help her up. But the older woman gave a sudden, startled exclamation, hastily smothered, and started forward.

"Not outside," Mr. Hyde distinctly heard her say; "I insist. That was all settled. In here with us."

It was a natural enough suggestion. There was room enough for three in the Black Maria. But her evident excitement seemed unnatural, to Mr. Hyde, at least. The maid did not appear to share it. She looked on stolidly through her big spectacles while Mrs. Varden appealed to her daughter. He could not hear everything she said, but she was all energy and authority now.

"I insist, Lenore."

The young girl had thrown back her white veil, and stood gazing about her as if she could see all the twilight hid, and liked what she saw. Her lips were softly parted. There was the sweetest blend of assurance and wonder in her violet eyes.

Seen so, she had a face to dream of, like the "face that wrecked a thousand ships"—a face to create adventure. It was the most mysterious thing about the mysterious three. It was keeping secrets, and secrets were meant to find out. It carried a challenge.

Laurence, for once in his life frankly staring, saw only the beauty of the face. Mr. Hyde saw the challenge, and with all his heart he accepted it. He would find out all there was to find out about the Vardens.

"Yes, inside," he heard the girl's clear voice answer, "but what does it matter? Mother, we're here—here—here—in Prescottville."

(TO BE CONTINUED)

Are Your Meals in a Rut?

By Effie Paige-Loomis

EVEN the healthiest appetites become tired of the same dishes day after day, and if they do, what must the person feel who has a poor one that must be coaxed? There are so many good things to eat and so many varying ways to prepare them that if one really tried I am sure that altogether different dishes might be served each meal for a year, but that is not necessary.

Not long ago I heard a young man say to his wife: "Bess, you certainly know how to get up good meals."

His wife smiled at him. "But your mother is a good cook, Tom; didn't she give you just as good meals?"

Tom went on eating his dinner but he stopped long enough to say: "She didn't take the trouble you take to make things nice."

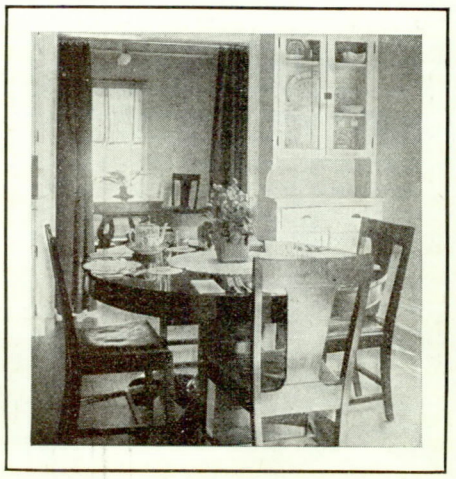
Tom didn't really mean "trouble"—that's the way a man says things—but Bess does take pains with her cooking and gives her meals much thought. Tom's mother serves good things, but her main idea is to have plenty of food and she doesn't care much how it looks when it is served. Tom is fastidious in a way and has learned to like his food daintily served, thanks to Bess' training.

When she serves a steak she sends it to the table hot, not lukewarm, and if there are biscuits or hot breads, they, too, are steaming when they reach the dining room. Every vegetable is carefully prepared and is served as nearly whole as possible, not in broken pieces.

Her desserts are dainty, temptingly served and are always chosen with thought as to the first part of the meal.

Whenever Tom's mother had corn for dinner it was stewed. Bess makes cream of corn soup, corn fritters, scalloped corn, corn patties, creamed corn in pastry cases, or serves it in some other way that makes it seem like a different dish. It is the same with her fruits and other vegetables, her meats and pastries.

When once a woman has attempted to make a new dish, something she has planned out herself, she will find herself doing it many times and getting a great deal of enjoyment out of it. It will cease to be a bugbear—this getting of meals.



A Neat Inviting Table

If a few moments are spent each evening making out the menu for the following day it will be surprising on the morrow to see how easy it is to get the meals. Instead of hating them, you will begin to enjoy their preparation and take pride in what you serve and how it is served.

Once we begin to make a change in our bill of fare we find ourselves looking everywhere for new recipes and asking our friends for their best. That will lead to other things—planning out each meal so every member will be satisfied—then balancing each meal as to its starches and fats, its acids and proteids.

So many times we see the dining table carelessly set, with large soiled spots on it where coffee or something else has been spilled. The napkins—if there are any—are rumpled and soiled and are not given to the same person twice. Instead of sitting down to a neatly arranged table, with clean linen and carefully placed dishes and silver, we find ourselves facing one that is most untidy, and the little appetite we have leaves us.

Many times the mother of the family has entirely too much to do and gives that as an excuse for the condition of her table. But if the family is large there is surely someone who can be taught to arrange the table each meal, even if that someone be a boy. If the family is small there is no excuse.

The simplest dishes, shining and unnicked, with plain, well-polished silver and glassware laid upon a fresh cloth or doilies, cannot help but be attractive to the hungry, tired man. And one can easily teach little folks to be careful of the cloth and the napkins. I know some parents who give prizes each week to the children who spill nothing on the table linen. An untidy table invites slovenliness and bad manners, and vice versa. It is like a child's dirty hands and face that shame the rest of the appearance.

Flavorings and seasonings should be used sparingly. The child who cares little for pepper will be pleased and the one who is fond of it can add it. Again there are many dishes which, though tempting and delicious and even nourishing to many, do not agree with others. It takes only a short time to find these little things out and when a meal is served it pays to see that each one has something he likes.

Perhaps you think that this would be too much extra, but work that is pleasant never seems so hard and it surely will be pleasant if everyone is satisfied. Instead of being a burden it will grow to be a pleasure, and as each member of the family gains better health you will feel indeed that it was well worth while. On you depend largely the health and happiness of the family, and with such responsibility on your shoulders it will be necessary to muster all your forces.

Let no article on food values pass your way unread. Spend a trifle now and then for some labor-saving device that will enable you to serve better meals. Learn to buy so that nothing is lost, and when you hear of a new dish that sounds good and you know by reading it that it is wholesome as well, try it. Be on the lookout for anything that will take away monotony from your service. Make the cooking and serving of meals a profession and excel in it.

The Place of the Rural Clubs in the General Federation

By Grace Viall Gray

In Mrs. Percy V. Pennybacker the General Federation of Women's Clubs has an able president. A woman of broad understanding and progressive ideas, she stands ready to extend a hearty welcome to the country women. When more rural clubs join the General Federation they will have their own place on the programs of the Biennials. There will be conferences on rural topics where authorities will speak on all the problems confronting the farm women. There will be open discussions where rural women can compare their own problems.

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The city women want the country women on their Federation programs; they want to coöperate with them in all club matters, and to claim friendship with them. One of the speakers at the last Biennial talked about The Woman on the Farm, and in beginning her address she said: "It is a happy omen of the future that the program committee should have seen fit to place among the topics of this meeting the needs of the woman on the farm, the real founder of the city's citizenship." It is a happy omen if only the rural clubs will rally round the Federation flag.

ONCE in two years women from every state in the Union gather at the Biennial, which is the meeting of the General Federation of Women's Clubs. The Biennial is a great event. It has now a membership of 6000 clubs and more than 1,000,000 members. The city and town women are much in evidence, but the rural women, who could contribute so much to a meeting of this kind, are missing.

At the last Biennial I hunted and hunted; I inquired and inquired; I searched the meetings; I pestered the chairman of every meeting; I looked through hotel registers; I consulted the information bureau in the lobby of the great auditorium; and finally, after a long, persistent search, I found what I wanted—a rural club representative. It seems strange that where thousands of women were gathered there should have been only one country woman wearing a rural-club badge. There may have been another, perhaps two or three others—but they hid themselves so securely or were so modest that they escaped recognition.

The General Federation will never reach its best until it has gathered about it all the rural clubs in the country. The latter must realize that they owe something to this great gathering of womankind, and before the next Biennial in 1916 must become members and send delegates.

All that is required of your club in order to be enrolled as a member of the General Federation is to pay the annual dues of two dollars and a half if it numbers twenty-five or less. Above that number the amount is ten cents for every member, so if your club numbers thirty your annual dues to the Federation will come to $3.

A great many clubs are laboring under the impression that it is necessary to belong to the District or the State Federation before they are eligible to membership in the General Federation. Wishing to have absolute authority on this question, I consulted Mrs. Frederick A. Dow, General Federation State Secretary of Illinois, who advises me that a club, whether rural or city, is not obliged to join a District or a State Federation in order to join the General Federation, although it is advisable and helpful to do so. The dues to the District Federation vary in different districts—five cents a member in some of the districts to a dollar a year for club dues in others.

To join the State Federation the dues are three dollars for fifty members or less, four dollars for from fifty-one to a hundred, and so on. All dues, whether for the maintenance of your own rural club or for the District or State or General Federation, may be raised by individual membership dues or in any way decided upon by the club.

Different districts have different numbers of delegates. Mrs. Dow mentions one that allows five delegates from each club while others have only two, which is the average number. All clubs send two delegates and two alternates to the state conventions. Each club after it is federated—that is, has paid its dues—in the General Federation is entitled to one delegate and one alternate for fifty club members or less.

The Inspiration of the Biennial

This may all sound complicated, but it is really very simple. Let us take a concrete case. The South Ashland Country Club belongs to, attends and sends delegates to the District meetings, the State Conventions and the General Federation. How did it go about it? After their rural club was formed the members wrote to the Nebraska State Federation President to inquire in what district they belonged. After being notified they wrote to the District Vice-President, who urged them to become part of the District Federation. After this was accomplished they just went one step farther and became federated with the State, and from that to the highest point—the General Federation. To do this it cost them:

Their personal dues to the home club	
Dues to District Federation	$1.00 a club
Dues to State Federation	3.00 a club
Dues to General Federation	2.50 a club
	$6.50 a year

Six dollars and a half a year in addition to its regular club dues is no great tax on any healthy up-and-going women's club of today. For six dollars and a half you get many times your money's worth. At your next club meeting bring this question before the members and see if a hearty response is not forthcoming when they realize what is to be gained by being a part of a well-organized system that reaches its members first through the District Federation, second through the State Federation, and lastly through the Biennial.

I asked the rural representative whom I found at the last Biennial what she was getting out of all the meetings, and she said: "I am getting great inspirations and higher ideals to take home to my family, to my club, to my neighbors and to my district federation. Besides all this, it is such keen joy to come in daily contact with gifted men and women. One cannot but gain much good from hearing all these wonderful women and professional men talk and discuss problems that are of vital interest to everybody."

So isn't the Biennial worth while if it gives us new thoughts, new ideals and new inspirations to carry back home to those who are longing to hear all about the things that are going on in the outside world?

Each rural club surely has some one member, at least, who has grown children old enough to care for themselves and the home while mother goes to the Biennial for a needed change and a well-deserved vacation.

Of course, there is the expense. But if you think of this trip as a vacation or as a rest, it then seems a natural thing for mother to spend the money to get younger in spirit, younger in thoughts and younger in body. Perhaps you may go but once in your lifetime, so take the very first opportunity you get to attend the General Federation. The honor of going as a delegate should be passed round among all the members and never seized always by the same woman.

A great number of the delegates get enough material from the programs and discussions at one Biennial to plan the two years' work for their own clubs until the next Biennial. Everyone who attends the General Federation cannot fail to return home more enthusiastic about clubs, about programs, about future plans and about life itself than ever before.

In college we were always advised to be full of "pep," which, translated into common language, meant to be alert, enthusiastic, full of life and vigor. And that's what you get at the Biennial—"pep" and "ginger." Even the dear gray-haired women showed it as much as the young brides and pretty schoolteachers. Can't you imagine it would be a very agreeable change to your family for you to return home as full of enthusiasm over your ideals and hopes as the young college student is over hers?

When more rural clubs join the General Federation they will have their own place on the program. There will be conferences on rural topics where authorities will speak on all the problems confronting the farm women.

There will be open discussions where the rural women from all parts of the United States and possibly from foreign countries—as there are foreign city delegates now—can talk freely about their own special problems and receive help from others who have solved them. The city women want the country women on their Federation programs; they want to coöperate with them in all club matters, and to claim friendship with them.

There is a magazine published by the General Federation, which many clubs use entirely for their material. This official publication of the General Federation is very valuable to those who want to know what it is doing each month in every state and who are also desirous of knowing what each State Federation is doing. You can keep informed on all your sister states in this way, and get splendid ideas for your own work. Every rural club would do well to have this magazine. For copies or further information concerning it write to Harriet Bishop Waters, Secretary and Treasurer at 25 West Forty-second Street, New York City, New York. A club can well afford the price of the magazine in order to keep in touch with the world-wide club news that is found only in this magazine. A rural club should get many ideas from its pages.

If your club is a member of the General Federation, the Federation Library Extension Committee, under the Department of Education, will establish little traveling libraries in your community. A traveling library is so helpful and so desirable in country communities.

The General Federation also possesses traveling exhibits of art. The chairman of the General Federation's Art Department selects art exhibits and sends them over certain circuits. Women's clubs that are federated can get an exhibit for five dollars and the cost of transportation.

The Federation has so many practical departments from which any Federated Club can get help: The Civics Department, which will assist in having "clean-up days" on the farm; the Conservation Department, which is working for good roads, saving tree and bird life; the Industrial and Social Committee, which is urging medical inspection in schools and the use of schoolhouses as social centers; and the Home Economics Department, which carries on pure food and swat-the-fly campaigns. There are many more practical departments, each having its own distinct work, program and conferences. Every federated club can draw on these rich resources.

New Life for Club Programs

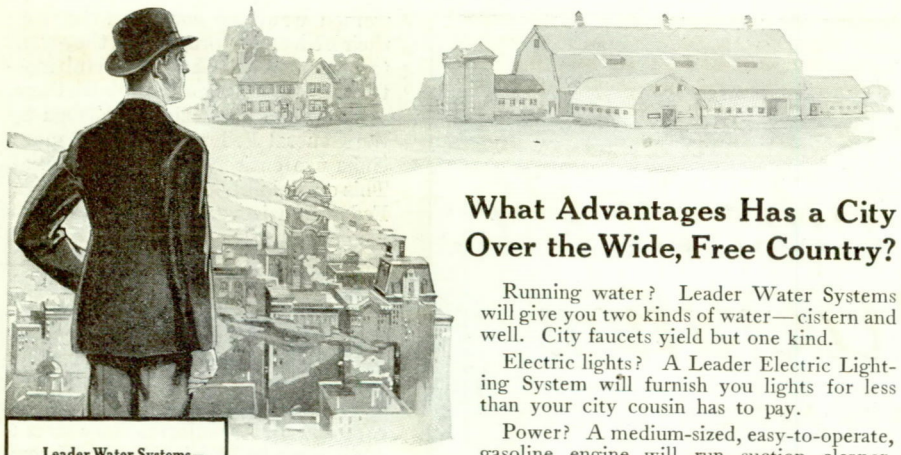
Some rural clubs, especially the older ones, are longing to broaden their programs, to get new life and new ideas into their work. The District, the State and the General Federations will do this for every club. Then there is The Woman Citizen's Library, which was exhibited at the last convention in Chicago. This library contains a course of reading prepared for club study. The Civics Society of Chicago can tell any club about it.

How many clubs know of the very useful Bureau of Social and Civic Information of Chicago? It has untold wealth of information and ideas for individual club members as well as for clubs. The Home Economics division of this Bureau has beautiful exhibits of model kitchens, labor-saving devices and many other things of interest to the housekeeper, which can be sent all over the country.

While your club is getting ready and planning for the next Biennial, join the State Federation. The Biennial makes you acquainted with many women from all over the country; the State Federation joins neighbors in conferences, discussions and departments. After you attend a few meetings you learn to know and to look for your different friends from up-state or down-state or wherever it may be.

One of the speakers at the last Biennial talked about The Woman on the Farm, and in beginning her address she said: "It is a happy omen of the future that the program committee should have seen fit to place among the topics of this meeting the needs of the woman on the farm, the real founder of the city's citizenship." It is in truth a happy omen if only the rural clubs now formed—and those soon to be formed, now that they know the great value of rural clubs—will rally round the Federation flag and get some of the enthusiasm that all the present Federation women have.

It was once asked by one of our former presidents: "How can the life of the farm family be made less solitary, fuller of opportunity, freer from drudgery, more comfortable, happier and more attractive?" Perhaps the answer to this question rests upon the rural women who shall form their clubs and take their place in both the State and the General Federations.



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will make your home equal in comfort to the most up-to-date city residence.

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Besides sending catalogs and prices our service men will help you with your water, light or power problems without placing you under any obligation. And one of our dealers will install the appliances and do it right.

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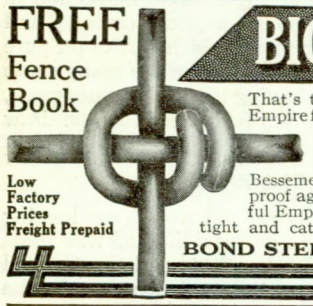

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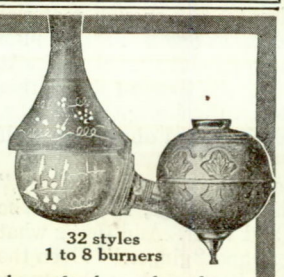

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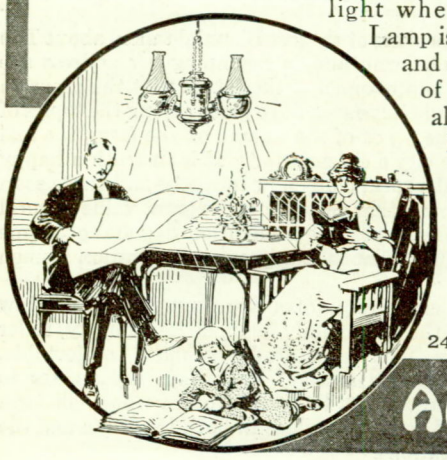

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ANGLE LAMPS

Canning a Living

How the Food Problem Was Solved for a Family of Twelve

By William Harper Dean

This Family of Twelve are Living on the Best the Land Affords—and Living Cheaply

THIS is just a little story of how a man and his wife have solved big problems; how a family of twelve is getting the best things out of life at less than cost; and why the man and his wife have concluded that Bountiful, Utah, was wisely named.

Several years ago P. J. Sanders moved with his family from Kansas to Utah. Now Sanders has ten children of his own and some thirteen hundred belonging to other people. You see, he's the big, smiling daddy of Utah's boys' and girls' clubs. He was working with boys' and girls' industrial clubs in Utah before a single canning demonstration had been made in that state. Then he got the Department of Agriculture's canning expert, O. H. Benson, to give just one demonstration. That was enough. Sanders has taken care of canning in Davis County ever since.

"Now, then," said Sanders to his wife, "I've been studying balanced rations for farm animals long enough. I'm going in for balanced rations for this family of ours. I'm showing the club girls how it's done; let's organize another little club and call it 'Bountiful' for luck. Let's practice what I'm preaching."

They did, and just to demonstrate how this family has solved the food problem, how it lives on fresh vegetables and spring chicken during the winter months, I'll give you Sanders' own account of what they accomplished last year. Remember, he has a very small place just on the edge of town.

The Best at Less Than Cost

"My wife, daughter and myself took charge of stocking the larder," said Sanders. "Of course some of the youngsters helped when they were not in school, but the three of us did most of the work. When we were through and took inventory of our food supply we found more than 400 quarts of vegetables, more than 500 quarts of fruit, forty spring chickens, ninety-two quarts of spare ribs, tenderloin, pork chops, headcheese and sausage. And so far as my family was concerned I didn't care whether the cost of living stood still or soared. We had ours!

"Now here's how it all worked out—how we are living on the best the land affords at less than cost. I'll tell you exactly what every mouthful of food is costing us. Take our tomatoes, for example. We put up ninety-five quarts. At the grocery store they would have cost us eight dollars. A can of tomatoes means about two pounds of the vegetable, costing one cent; fuel and labor cost two cents, making a total cost of three cents a quart. Our ninety-five quarts cost us $2.85. We saved $5.15 on tomatoes alone.

"We put up eighty-five quarts of sugar corn, and it's as good as the best you can buy. At the store it would have cost $29.75; ours cost $11.05. We saved $18.70 on our corn.

"We didn't raise it; we bought it and paid a high price for it too. It cost us ten cents a dozen ears and a dozen ears cut from the cob just filled a quart jar. Sometimes eight ears would fill the quart, but the average was twelve. Each quart cost us thirteen cents—ten cents for the corn and three cents for labor and fuel. The best corn sells here for twenty cents a can, two for thirty-five cents. We should have bought our corn when it was cheaper—about seven cents—and made a greater saving.

"We put up 150 quarts of stringless beans on shares, our share being seventy-five quarts. We saved $7.12 on this item.

"Our fifty-four quarts of peas cost us five cents a quart; peas, fuel and labor included. Total cost $2.70. We saved $13.50."

Pork in Empty Fruit Jars

"Twenty-three quarts of asparagus were put up at a total cost of thirteen cents a quart. We saved $3.91.

"One of the children gathered twelve quarts of mushrooms. All it cost to can them was thirty-six cents. At the store we should have paid twelve dollars for them. Another saving of $11.64.

"Fifteen quarts of squash cost us forty-five cents. If bought at the store they would have cost $2.25; saving, $1.80. Twenty-six quarts of beets cost us seventy-eight cents; I don't know what they sell for at the store. And thirteen quarts of small, tender carrots cost us thirty-nine cents. The store doesn't handle carrots. Forty-eight quarts of catchup cost us three cents a quart, saving us $10.56. For this catchup we used small tomatoes, which cost us nothing.

"Chili sauce is good, especially when it costs just seventy-two cents for twenty-four quarts. And there were seventy-two quarts of preserved plums, peaches, and apricots; four bushels of apples for breakfast dishes; fifteen quarts of apple-pie filling, fifteen quarts for apple dumplings; and thirty-two quarts of Bartlett pears. On these things our saving amounted to about fifty per cent. Eighty-two quarts of rhubarb cost us five cents a quart. We saved $4.10 on this.

"We had kept forty spring cockerels until October, when we were offered forty cents apiece for them. But into the glass jars they went—the whole forty. If we had kept them until now they would have eaten their heads off because of the high price of feed. But instead of our feeding them they are feeding us—and incidentally saving us sixteen dollars.

"In December, when quite a number of our fruit jars were empty, we killed three hogs and canned in glass jars 215 pounds of their meat—sausage, headcheese, pork chops, tenderloin and ham. Besides this we have fifty pounds of ham put up fresh in a large crock now filled with fried meat, covered with lard and sealed with paraffin.

This is all fresh for summer use and only needs warming in order to have it ready to serve for meals.

"Our cow gave us 6060 pounds of 4.2 per cent milk during the year just closed; chickens are laying sixty eggs a day now; and crop prospects are good.

"The war may continue, butcher shops may close and gardens may fail, but unless the thief makes a haul from our unlocked cellar we shall not worry. We'll eat on and on. And we'll eat a balanced ration, living on the cheapest and yet the best that the land affords.

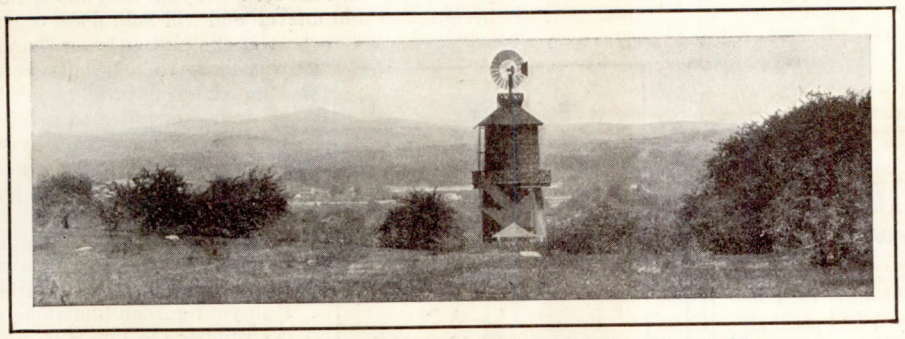
"We have made the little things count, you know; and they tell me it's the little things that make for content and discontent. This family of ours begins with baby sister, who has been in Bountiful just four weeks, and runs up to big brother—just turning his twenty-first year. Five years ago, when twins came to us, one of the youngsters decided that one of them just must be sold to the junk man. I guess he thought there wasn't enough food to go round.

"But we have not one to spare. We're healthy and happy. We've made the little things count in every chapter of our lives. And we're content!"

A FARM TEA HOUSE

Where the Personal Touch Pays—By Florence Spring

THE pleasant fashion of tea houses has spread rapidly over the country during the last few years, and one goes on very few country drives or trips when the refreshment of a cup of tea cannot be had for the alighting. The "Brigham Hill Farm Tea Room," located in a beautiful spot in Massachusetts, is one of the most successful and attractive tea houses I have ever visited. It can hardly be called simply a "tea house," however, for its attractions are so many and so varied.



The Farm is on the Top of a High Hill From Which There is a Beautiful View

Usually a little building or room in a building is chosen in some pleasant and convenient spot on the beaten track for an enterprise of this sort. "Brigham Hill" was planned on an entirely different principle. It was started by the women of a family on their own home farm, the products of which are used to supplement the attractive articles offered for sale. The farm is situated on the top of a high hill from which there is a beautiful view. A small building near the main house was chosen for the tea house and gift shop. This contains three rooms on the first floor, one of which is used for the tea room, another for the fancy articles that are on sale, and the third is a small kitchen.

The tea room is pleasant, tastefully decorated and furnished with artistic china. In pleasant weather little tables are set under the big trees outside. The hostess and her daughters assist in serving the guests. I think the secret of the success of this department of the undertaking is the standard excellence of the food and the evident desire of the hostesses that every one shall have plenty of everything. The menu is in substance the usual hot and cold drinks, two or three kinds of delicious sandwiches and always a few specialties, changed or added to each season. All of the delicious food is cooked and prepared in the homestead in the mornings.

Each year some new enterprise seems to suggest itself. The finest specimens of fruits and vegetables are selected and grouped in baskets or in heaps on the steps of the tea house, making a lovely color picture, tempting both eye and purse. Particular flowers are specialized and used both for sale and for decoration. Lately the farm has been made a bird sanctuary and many bird houses placed about, with duplicates of all for sale.

One year a dance hall was made out of an old carriage house. This is used not only for dancing, but for lectures, card parties and musicales. In the tea house are served lunches or teas for parties who make an afternoon under the trees at the farm. Orders are taken for wedding cake and all sorts of delicious fancy cakes.

A gift shop was an early accessory to the tea room and each season sees some new attraction. During the winter the specialties of the stock—aprons, bags, boxes and pincushions—are fashioned by the energetic proprietors.

Articles on consignment are also welcomed, this constituting a flourishing line of the business; they are, however, carefully judged before accepted, so that everything offered for sale is choice, novel and attractive. Sometimes some particular article is imported. Candy is made for sale and also accepted on consignment.

Near the tea-house grounds and just beyond the fine old trees shading it is an old-fashioned garden in which old-time favorites spread and run riot. Hollyhocks, sweet peas, Canterbury bells, Delphinium, make a blaze of color. All the resources of the farm that are attractive to visitors or advantageous to business have been developed. The whole enterprise is a noteworthy example of what may be accomplished on a home place, from small beginnings, by business enterprise, energy and thought, and may stand as a model for those considering a similar undertaking.

The Tea Room is Tastefully Furnished

Some New Attraction Each Season

In Pleasant Weather Little Tables are Set Outside

A Dance Hall Was Made Out of a Carriage House

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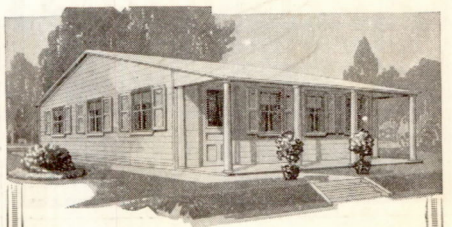

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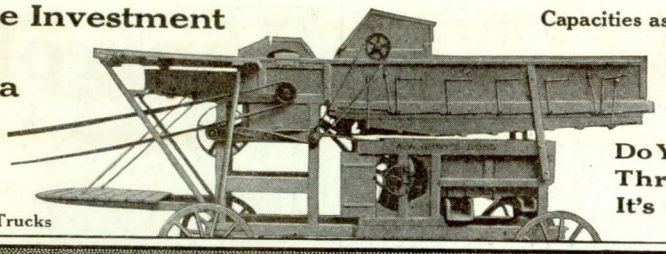

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OWN THIS SMALL THRESHER

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All near Boston and Worcester. All kinds. All prices. Send for "Farm Sheets."

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OPEN for Manager's position, large farm or gentleman's estate, thoroughly competent to get results, practical knowledge in all modern methods of agr., stock, etc. Honesty, stability, perseverance main objects. Best of reference from present employer. Married. Strictly temperate. Address BOX 34, *The Country Gentleman*, Phila., Pa.

GENERAL FARM OR ESTATE MANAGER desires a position about October 1st or before. 6 years in last place, best references, expert on lawns, understands all breeds of cattle, building roads, etc. Had 200 men in last place. Willing to work and make good, and will go anywhere. Address BOX 36, *The Country Gentleman*, Phila., Pa.

SUPERINTENDENT wishes to get in communication with lady or gentleman who requires the services of a practical man, to build a new estate or renovate an old one. Am American, married, 34 years old, strictly temperate, best of references from past and present employer. On present place 5 years past; understands all farm crops, stock and machinery, the laying out of drives, lawns and garden and building of same. The planting and care of trees, shrubs and flowers; building and care of greenhouses; drawing of plans and erection of practical farm buildings. Would be pleased to show my work and the place to any one interested in the above. Address

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FOR SALE—The Altamont Spring Fruit Farm, located on top Blue Ridge Mts., affording grand view of the Cumberland and Shenandoah Valleys; 105 acres; 12,000 peach and apple, mostly 4 years old; 65 miles north of Washington. This year's big crop, live stock feed, and equipment, $18,500.00. One half cash. Complete set farm buildings. Trees, soil, air, drainage, altitude perfect.

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POSITION WANTED

Unmarried man, thirty-five, temperate, reliable, of good family, experienced in all departments of farm life; fine stockman; chauffeur and all around mechanic; carpentry and cement work—a practical, capable and thorough worker—wants good-paying, desirable position on gentleman's estate. Will go anywhere. Best references.

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The Child's Garden

Keeping the Beds Trim and Clean

This department will tell any boy or girl how to grow a little garden of flowers and vegetables. Questions on special topics, accompanied by stamped envelope, will be answered by mail. Address—The Child's Garden Editor, The Country Gentleman, Philadelphia, Pennsylvania.

PERHAPS the paths through or round your gardens are looking a little bit shabby and need fixing up. If so run your garden line or string along the edge of your beds just as you did when you first laid out your garden. Make a shallow mark under the line with your spade, then take out anything growing in the paths either with a knife or with the corner of your hoe, but do not dig large holes or your path will become soft and uneven and will hold pools of water when it rains.

If the path is lower than the beds—and it is very likely to be because you have walked on it so much—it naturally holds water, so it should be arched or crowned a bit by scraping earth from the sides toward the center. Then tramp it hard, and rake neatly, and you will have a gutter on each side of the path where the next rain will go.

Draw the Soil Toward the Center of the Path

If your garden is along a hedge or a fence you will not have a path to keep clean, but you will probably have a grass edge to keep neat. Run your garden line along the edge, then cut deep under the line with an edger, which is a sharp tool in the shape of a half moon. Be sure you cut all the way through the grass roots; then lift the line and take out all the grass and grass roots that are on the bed side of this cut line. Once in several weeks is usually often enough to do this.

We have had one long talk about bugs, but I do not think it will hurt us to talk a little more about the bugs that are troubling us in the summer.

Aphis is one troublesome fellow who feeds on our flowers and vegetables. These insects put their tiny bills into the stems and leaves and suck out the sap of the plants. They are about the size of the head of a pin, and some are green, some black, some red, some gray and fuzzy. The green ones we find mostly on roses, sweet peas and garden peas and melons; the black ones like chrysanthemums, poppies and broad beans; the red ones live on golden glow, and the fuzzy gray ones prefer cabbage, kale and Brussels sprouts, though we sometimes find any of these varieties on other plants.

Have Tobacco Ready for the Beetles

THE aphis has many enemies which sometimes give us all the help we need. The lady bugs' babies feed on the aphis; but on the other hand, the aphis is the ants' cow, and is moved from plant to plant as new food is needed. We cannot trust too much to the aphis' enemies, so we spray or dust these tiny insects to kill them. They have babies so fast that there will be children, grandchildren, and great-grandchildren in a single day. One of the best sprays is kerosene emulsion, but tobacco tea is also good. Just plain soapsuds helps. Then you can dust the plants with powdered tobacco or pyrethrum powder while they are wet with dew.

Other troublesome insects are the striped and spotted beetles which attack melons and cucumbers. They do several kinds of harm, so we have to fight them all the time. The beetles chew the leaves and stems; their grub children chew stems and roots and bore right up the stems of the plants. These beetles are very hard to fight because they are so quick. Catch every one you can and kill it. Watch for the eggs, which are bright yellow and are laid in the earth round the stem of the vines.

The beetles do not like grit or bad odors, so you can dust your plants well and often with the powdered tobacco, and also put some powdered tobacco mixed with wood or finely sifted coal ashes on the earth round each plant. But bright, sharp eyes and quick fingers are needed all the time. These beetles come as soon as the vines break through the ground, so you should have tobacco ready to greet them.

Next comes the cabbage worm. The mother is a white butterfly with a black spot on the front of the forewings and small black dots farther back. The eggs are a bright yellow and are laid on the leaves of the plants, usually on the under side. If you go over your plants every day and look for the eggs you will keep any worms from hatching, but if some should get away from you they are easily poisoned.

I think I dislike the squash bugs more than any other of our garden enemies. They are gray when little, becoming darker as they grow older, and whole bunches of them sit together sucking the sap out of the leaves and stems and putting a poison into them at the same time. They have a very disagreeable odor also. Their eggs are bronze colored and are usually laid on the under sides of the leaves. You cannot fail to see them if you look—and you must look every day and crush the eggs before they hatch. If some get away from you, and you find the bugs, treat them to a good dose of tobacco dust or kerosene emulsion.

Tomato worms are so large you can easily see them. In fact, if it is quiet you can hear them eat. Tumble them off of the vine with a stick into a can of kerosene unless they are covered with white specks that look like eggs. If these are on the worm let him alone; the little creatures which are in them are his enemies.

Parsley and carrot worms are so brilliant in color that you can easily see them. Gold and black and green is their dress; tumble them into kerosene.

Aster beetles are black creatures which eat the flower as fast as they can. Watch your plants carefully, and catch the beetles as fast as they appear; tumble them into kerosene too. We can spray our flowers with arsenate of lead, but a watchful eye and quick fingers are the best remedy. Watch your plants carefully, pick off any eggs you find and stamp on them until there is nothing left.

Automobile Advertising

"No tale of Aladdin's lamp is more marvelous—the full development of an industry from infancy to maturity in a decade; a decade in which merchandising methods went the full gamut of evolution. . . . Out of the troublous past is emerging a great and powerful industry, with its merchandising methods safely grounded on the solid rock of national advertising."

From report on Automobiles, by the Curtis Division of Commercial Research

This industry which, free from hampering tradition and precedent, seized so early upon national advertising as its chief support, also determined early upon THE SATURDAY EVENING POST as a chief pillar in that support.

Note the growth of the advertising of automobiles, parts and accessories in the POST as shown in the tables which follow:

Total Advertising of Automobile Classification in THE SATURDAY EVENING POST

Year	*Lines*	*Amount*
1909	83,841	$ 298,668.46
1910	173,162	782,704.89
1911	218,855	1,218,428.11
1912	292,134	1,737,407.79
1913	316,843	2,099,495.10
1914	346,421	2,385,458.18

It is worth noting, in passing, that these sums for advertising in THE SATURDAY EVENING POST, large as they are, represent only about one-half of one per cent of the retail sales of the industry.

A further analysis of the figures shows some interesting tendencies, as follows:

Growth in Number of Automobile Advertisers and Unit of Space in THE SATURDAY EVENING POST

	1909	*1910*	*1911*	*1912*	*1913*	*1914*
Number of advertisers, . . .	65	109	108	121	128	124
Number of advertisements,	274	420	517	678	628	763
Ave. unit of space (lines), .	306	412	423	431	505	454
Cost of ave. unit of space, . . .	$1,090	$1,863	$2,357	$2,563	$3,343	$3,126
Ave. investment per advertiser,	$4,595	$7,181	$11,282	$14,359	$16,402	$19,238

There has been a steady increase in the number of large space units used, which for the past three years has been as follows:

Number of Full Pages of Automobile Advertisements in the POST

1912	*1913*	*1914*
338	407	416

In 1912, 79% of the automobile advertising in the POST was in page or larger space.

In 1913, 87% of the automobile advertising was in page or larger space.

In 1914, 82% of the automobile advertising was in page or larger space.

There were in 1914 five automobile advertisers each of whom invested $100,000 or more in THE SATURDAY EVENING POST space. Never before had there been more than one.

* * *

These facts are important in their bearing upon the advertising plans of automobile manufacturers.

They are even more important, however, to other industries which have not as yet "run the full gamut" of merchandising evolution.

There are several great industries to which the same sort of development is possible if they will follow the same bold lines of attack.

Manufacturers in various lines may be interested in a 36-page booklet which we have just published, entitled "The Merchandising of Automobiles." A copy will be sent upon request.

THE CURTIS PUBLISHING COMPANY, Independence Square, Philadelphia, Pa.

The Great American Smoke—"Bull" Durham

Fall in line with hundreds of thousands of red-blooded smokers of the good old U. S. A. Smoke the cigarette tobacco that's been an American institution for three generations—"Bull" Durham. The rich, relishy, star-spangled taste of "Bull" puts the national spirit of get-up-and-hustle into your hand-rolled cigarette. "Bull" is the freshest, snappiest, liveliest of smokes.

GENUINE

"BULL" DURHAM

SMOKING TOBACCO

"Roll your own" with "Bull" Durham and you'll find a far greater satisfaction in smoking your cigarette than you ever did before. The rich, mild tobacco leaf "Bull" is made of has that delightful mellow-sweetness which suits your taste to a "T". And its aromatic fragrance is supremely unique. Men who never smoked cigarettes before are now "rolling their own" with "Bull" Durham.

THE AMERICAN TOBACCO COMPANY